ANALYSIS OF TRAFFIC STOP DATA COLLECTED BY THE WASHINGTON STATE PATROL: ASSESSMENT OF RACIAL AND ETHNIC EQUITY AND BIAS IN STOPS, CITATIONS, AND SEARCHES USING MULTIVARIATE QUANTITATIVE AND MULTI-METHOD QUALITATIVE RESEARCH TECHNIQUES

Project Final Report

OGRD #102555
Agreement #C040970GSC

Prepared by:

DIVISION OF GOVERNMENTAL STUDIES AND SERVICES
DEPARTMENT OF POLITICAL SCIENCE AND CRIMINAL JUSTICE PROGRAM
WASHINGTON STATE UNIVERSITY

Principal Investigators

Nicholas P. Lovrich, Ph.D., Director of DGSS

Michael J. Gaffney, J.D., Associate Director of DGSS

Clayton Mosher, Ph.D., Associate Professor of Sociology

Mitchell Pickerill, J.D. Ph.D., Assistant Professor of Political Science

Travis C. Pratt, Ph.D., Associate Professor of Criminal Justice

701 Johnson Tower
Washington State University
PO Box 644870
Pullman, WA 99164-4870

March, 2005

TABLE OF CONTENTS

Executive Summary ---------- **2**

Acknowledgements ---------- **3**

I. DOL Photo Audit ---------- **4**

II. Contacts and Citations ---------- **9**

III. Search Data ---------- **46**

IV. Citizen Survey Data ---------- **74**

V. Future Directions ---------- **87**

References ---------- **91**

EXECUTIVE SUMMARY

This report was prepared by the *Division of Governmental Studies and Services* at Washington State University. Points of view and opinions contained in this report do not necessarily reflect the official position of the Washington State Patrol.

Summary of Report Findings

1. Our analysis of DOL driver photo audit data indicates a high level of consistency with regard to race designations made by troopers in the field and members of the WSU audit team reviewing official photos and documents in the DOL. Our results also indicate a high degree of consistency between troopers' race codes on TARS forms and on citations. In short, there is no evidence that troopers are systematically miscoding race on either the TARS forms or citations.

2. Using multiple (5) benchmarking methods, our results indicate that there is no systematic pattern of disproportionate contact by race or ethnicity with regard to troopers' decisions to stop motorists, nor is there evidence of systematic racial differences with regard to troopers' decisions to issue citations versus warnings after traffic stops are initiated when key contextual variables are included in a multivariate analysis.

3. Our results do indicate a small but noteworthy racial disparity with regard to vehicle searches—in particular, with regard to Native American drivers. Information gleaned from focus groups held with troopers and interviews conducted with WSP supervisory personnel and some Native American leaders in high contact areas of the state help to shed considerable light on this disparity. However, additional information regarding the contextual circumstances surrounding vehicle and person searches incident to traffic stops is necessary before more firm conclusions may be reached in this area.

4. Also with regard to searches, our multivariate statistical analysis indicates that race is, at most, *but one* of a number of factors influencing the decision of a WSP trooper to initiate a discretionary search. Other measured factors, such as the seriousness of the violation, are much stronger predictors of troopers' decision to initiate a search after a traffic stop.

5. Our statewide citizen survey indicates a high level of satisfaction with the WSP. Some differences do exist between minority and non-minority citizens, however, and our statistical analysis suggests that the race-gap in reported satisfaction with agency services has to do with the *perception* of racial profiling on the part of minority respondents. Minority citizens' lower satisfaction ratings are *fully mediated* by whether or not they believe the WSP engages in racial profiling. Thus, the dissemination of the information contained in this report—which indicates that the WSP does not engage in such practices—is important should the WSP wish to improve its image with Washington's racial minority population.

6. An agenda for further needed research is set forth in the concluding section of the report, featuring seven primary elements: (1) continued monitoring of traffic stop data; (2) performance of a larger scale, more comprehensive photo validation of racial classification audit; (3) use of force records analysis; (4) SCAT officer interviews and field observations; (5) car-mounted videotape archive review; (6) aircraft-spotted violation benchmarks for those APAs with high contact rates for Latino and Native American drivers; and (7) Native American focus groups on tribal reservations in high contact APAs.

ACKNOWLEDGEMENTS

There are many persons whose efforts in support of this study and report preparation deserve particular recognition. Primary among those persons are the many District Commanders, district staff personnel, and WSP Headquarters staff who fully complied with Chief Lowell Porter's dictum to "give the WSU researchers whatever data and help they ask for…" The many WSP troopers and supervisory personnel who volunteered to participate in interviews and focus group sessions likewise deserve our sincere thanks. The able staff of the WSP and the Department of Licensing who set up our driver photo audit work—in particular Captain Steve Davis and Bonnie Pratt—deserve our very special thanks. The WSU driver photo audit team of Chappell Henderson and Worth Allen merit special recognition as well for their dedicated effort to locate and assess driver photos, and to document their independent perceptions of the race/ethnicity of the person in the digital photograph.

With respect to the conscientious citizens of the State of Washington who both participated in the statewide survey and then volunteered to take part in citizen focus groups to discuss the issue of racial profiling in traffic stops, we owe them a great debt of gratitude. Without their devotion to civic duty we could not have collected the deeper sentiments that underlie answers recorded on a survey questionnaire. The planning and organization of the several citizen focus groups conducted across the state were facilitated by Washington State University Extension, and we are most grateful for the assistance rendered to our project team.

Finally, while the *Principal Investigators* for this project share in the authorship of this report and receive due recognition for their efforts on the title page of this report, there are many essential ***support staff*** associated with the *Division of Governmental Studies and Services* (DGSS) that deserve recognition for their important contributions to this team effort. Ruth Self, DGSS Senior Program Support Supervisor, managed the budgets and personnel appointments and the interagency correspondence throughout the project. Without her patience and diligence we could not have been successful in carrying out the many field research tasks associated with this effort. With regard to those diverse field research activities, Jennifer Albright—DGSS Research Coordinator—provided essential oversight to the statewide survey, to the DOL photo audit study, to the field interviews, and to the focus group sessions carried out in the project. As a doctoral candidate and DGSS staffer, Jennifer had her hands full but always carried out her project duties with care and observed high standards of professional work. The fieldwork noted above required a great deal of travel and schedule coordination; Patty Bireley, DGSS Secretary, carried out those tasks with her near magical powers of coordination and persuasion.

In closing, this project and the resultant final report represent the dedicated efforts of many individuals at Washington State University and across the state, including both ordinary citizens and WSP and DOL agency personnel. To all those many persons who contributed to this team effort, our most sincere thanks and appreciation for your invaluable support.

I. DOL PHOTO AUDIT

The methodology employed for this portion of the study entailed randomly selecting 1,000 individuals from the records of the Washington State Patrol who had been stopped during daylight hours (for maximum visibility) proportionately from each of the WSP state districts. The sampling protocol involved sampling only those citizens who Washington State Patrol troopers had coded as "white" during such stops. In addition, 200 randomly selected search files were included in this analysis. The principal purpose of this analysis was to determine if WSP troopers were systematically classifying minority drivers as white in order to minimize charges of racial profiling. Such charges had been made and reported in the press.

From this original randomly selected sample of "white" motorists stopped in daylight hours and from the search incidents sampled there were a total of 812 cases where a digitized photo was available to the audit team for inspection at Department of Licensing offices in Olympia. The audit team consisted of two trained WSU graduate students who were instructed to determine the race of the individual from the digital photo archives; neither member of the audit team was aware of the racial classification designated by the trooper for the individuals in the photos. WSU researchers were also given access to the driver race designations for the TARS form submitted by the trooper and on the citation for a total of 597 of the original cases. This information allowed us to compare the consistency of race designations on both documents, as well as determine the degree to which the race classifications made by the troopers are consistent with those of the two WSU audit team members. Using this cross-checking and a multiple validation strategy, the DOL photo audit analysis proceeded in three distinct stages.

Step 1: High Certainty Photos

First, we assessed the degree of agreement between the officers' racial classification (white versus nonwhite) and those of the two members of the audit team for those cases where both audit team members were at least "fairly certain" regarding their race classification (n = 679; this represents 84% of the randomly selected cases from across the state where a digital photo of the driver is available).

Of these 679 cases, the breakdown between the two researchers in terms of the number and percentage of these cases coded as "nonwhite" are:

—Audit member #1 n = 47 (6.9% of 679)

—Audit member #2 n = 32 (4.7% of 679)

The number and percentage of cases where **both** audit members coded the case as "nonwhite" are n = 25 (3.7% of 679).

Step 2: All Photos

The second stage of the analysis entailed re-estimating these totals using the full sample of 812 photos. The logic behind doing so is that since the members of the audit team were uncertain of their ability to make an accurate racial classification from the photo in many cases, it is likely that the WSP troopers were facing the same uncertainly as well. Under these circumstances, gauging the level of consistency in the perception of the racial classification of detained drivers takes on added importance.

Accordingly, of the 812 cases the breakdown between the two researchers in terms of the number and percentage of these cases coded as "nonwhite" are:

—Audit member #1 n = 68 (8.4% of 812)

—Audit member #2 n = 42 (5.2% of 812)

The number and percentage of cases where both audit members coded the case as "nonwhite" are n = 34 (4.2% of 812). It is clear that the rate of inter-rater agreement between the two WSU audit team members is not 100%, attesting to the inherent difficulty of making a determination of race. This difficulty also extends to the WSP trooper in the field.

Step 3: Comparing Consistency of Race Designations on TARS and Citations

When the TARS and citation race designations are converted to a dichotomous "white-nonwhite" scheme (consistent with the category codes used by the two members of the WSU audit team) the total inter-item correlation (Cronbach's alpha) between the TARS, citation, and two audit team members is a robust **.86**. This *alpha coefficient* is ***extremely high*** and *indicates strong consistency in the white/non-white classification arrived at by the WSP troopers and the WSU audit team members*.

Since multiple race classifications are available to the troopers, we also checked for the consistency between the TARS and citations for all eight racial classifications. The inter-item correlation here was .74 — again, very strong. Nevertheless, the consistency between the TARS and citations was not perfect. Additional analyses indicate, however, that the error rate here is rather low. Specifically, of the 597 cases where all of the information was available, *only 18 cases (3 percent)* were inconsistently classified across the TARS and citations; there were 16 cases where the TARS indicated nonwhite but the citation indicated white, and 2 cases where the TARS indicated white but the citation indicated nonwhite. Additional diagnostic statistics also confirmed the high level of consistency here (Kappa = .712, Kendall's tau = .731).

The bottom line is that there is a high level of consistency with respect to: (1) troopers' racial classifications across the TARS and citations, and (2) troopers' racial classifications and those identified by the members of the audit team. We have some concern here about record

keeping in that we are missing a considerable amount of data. To be sure, nearly half of the original sample "drops out" in the analyses of the TARS and citation race designations due to missing information not provided by some of the WSP district offices. As a consequence, we cannot absolutely rule out the possibility of some systematic error in these analyses. With additional data for the missing cases, we could confirm whether this general pattern would hold for the full sample. What we do have here, however, is a decidedly positive picture of consistency with respect to troopers' evaluations of citizens' race.

Summary

Given these three sets of analyses we can conclude that there is a high level of consistency and accuracy with regard to troopers' perception-based classifications of drivers' race. Indeed, even when cases where both members of the audit team reported low levels of certainty regarding the driver's race, the level of consistency between the audit members' evaluations and those of the troopers is above 95%.

That this level of accuracy and consistency would be found is also consistent with responses we gathered from troopers during the several focus group sessions held across the state—even though troopers often found it difficult to make what they thought was a fully accurate racial classification. A consistent theme that emerged out of the several citizen focus groups was that even if some errors in racial classification are made by the troopers, citizens are inclined to feel that WSP troopers are trying their best to make accurate racial classifications. A frequent remark heard was that while "other" law enforcement agencies may engage in racial and ethnic misclassification, this is not expected of the Washington State Patrol. For example, we heard from citizens who stated that:

"I believe they're probably trying to be honest about it."

"I don't think intentionally they try to give a different color. Personally, I believe they say he's black or white or Asian or…I think they are being honest. I don't think they lie on that part. Why would they lie?"

and,

"I don't think the coding that's done incorrectly is done intentionally incorrectly."

In the end, a uniform pattern of findings is in evidence. High levels of consistency across the DOL photo audit stages of analysis were noted, which were all the more impressive given the findings from the trooper focus groups indicating that relatively frequent difficulty is experienced in assigning racial or ethnic identity to motorists detained in traffic stops. Moreover, comments gathered in citizen focus groups regarding the likelihood of WSP trooper falsification of racial and ethnic identity suggest that citizens are strongly inclined to express trust in the WSP and its troopers. Given all of these considerations, we can state with considerable confidence that the citation and search analyses we report below are not contaminated by systematic errors in racial classification, at least with regard to the white-nonwhite designations.

II. CONTACTS AND CITATIONS

Contacts

The traffic stop data analyzed for this report cover the period November 1, 2002 to June 30, 2004, representing a total of slightly more than 1.2 million "self-initiated" contacts—those initiated by troopers. While our August 2003 report concluded that the Washington State Patrol was not engaged in racial profiling at the level of contacts, it is important to continue monitoring stops for possible evidence of racial profiling and to conduct detailed analyses of more recent data. In this section, we present such analyses of contact and citation data, and use information derived from the trooper/sergeant and citizen focus groups to assist in interpreting the quantitative results.

A Note on Benchmarks

There is an ongoing national debate in the racial profiling literature regarding the appropriate data to use as "benchmarks" for the interpretation of traffic stop data. Some researchers (see especially Lamberth, 2003a; 2003b; 2004) have argued that the most effective benchmarks are based on "road survey" data, collected by trained observers who record the race/ethnicity, gender, and age of drivers, either at stationary points or while driving. While such benchmarks may be appropriate for some studies, they have a number of serious shortcomings, especially in the context of analyzing data from a large state patrol police force as is done in this report. Road survey data are extremely expensive to collect, and despite the claims made by some researchers that a high degree of reliability can be achieved in observers' coding of race/ethnicity, gender, and age, such claims are rather questionable[1]. Use of these data also lead

[1] Lamberth (2003a; 2003b; 2004) reports inter-rater reliability coefficients on race that are never lower than .80, regardless of whether the observations were conducted in daylight or non-

to limitations in the analysis of the actual stop data, given that the observational data only pertain to a certain time and location, realistically; traffic stops should only be analyzed for the same period. This approach to benchmarking can result in discarding a great deal of data that may or may not reveal racial profiling. More important in terms of their limitations is that for the most part, these studies only measure two of the three factors which can affect traffic stops—that is, location and driving quantity, but not driving quality (see Fridell, 2004). Although some studies using the "rolling survey" method have included measures of speeding, even these surveys are not capable of measuring compliance with the myriad of other traffic laws that are subject to enforcement[2].

Given these serious problems with observational benchmarks, this report presents analyses comparing self-initiated contacts by the WSP to **five separate archival benchmarks**: (1) population characteristics; (2) daytime versus night-time stops; (3) contacts initiated as a result of the identification of speeders via radar and aircraft patrols; (4) contacts initiated as a result of "calls for service" and "self-initiated vehicle assists;" and (5) contacts initiated as a result of involvement in traffic accidents. The self-initiated contact data are compared to these benchmarks for each of the 40[3] autonomous patrol areas of the WSP.

---

daylight hours. These reliability coefficients should be considered in the context of an observational study in New Jersey (Lange, Blackman and Johnson, 2001) in which one third of the data collected had to be excluded because the driver's race/ethnicity could not be determined due to various factors--including the speed of vehicles, windshield glare, bad weather, and shadows. Similarly, Rojek, Rosenfeld and Decker (2002) report that at night, observers in their study were unable to determine the race of drivers in 40 percent of the vehicles.

[2] For exceptions, see Alpert (2003) who measured three different types of traffic law violating behavior—namely, speeding, running red lights, and not coming to a complete stop at stop signs (as cited in Engel and Calnon, 2004b).

[3] As of October, 2003, the number of WSP autonomous patrol areas was reduced to 39.

Population comparisons. Table 1 presents findings on the race/ethnicity (hereinafter we use the term "race" to mean race/ethnicity)[4] of those stopped in self-initiated contacts by members of the WSP for each of the 40 autonomous patrol areas of the WSP, while Table 2 presents findings on the difference between the percentage representation of the population and percentage of stops by race[5] for each APA. It is important to note that race-specific population data are not the ideal denominators or benchmarks in analyses of traffic stop data, as there are likely to be differences in driving patterns and types/conditions of vehicles across racial groups that may have an impact on who is contacted. In addition, particularly with respect to the Hispanic population in Washington State, census figures may underestimate the total resident population due to the presence of migrant workers and undocumented immigrants[6]. It is also

[4] We understand and appreciate the important distinction between race and ethnicity. For the sake of style and convention, we will use "race" to include differences in ethnicity as well as race throughout this report. It is also important to highlight two noteworthy differences between the analyses presented in this report and our August 2003 report. First, our discussions with individual WSP troopers and sergeants indicated that it was difficult for them to distinguish between Asians and Pacific Islanders in coding the race of those they contacted. As one sergeant noted, "I think they've got a code for Asian, and then they have a code for Pacific Islander. OK! How do you differentiate? That's a tough one." Because of this observation, we have combined these two categories. Second, in light of concerns regarding the profiling of Arabs/Muslims in the post-September 11, 2001 period, we also use "East Indians" as a racial category in our analyses. Due to potential problems in the stability of statistical comparisons, for certain analyses we exclude the East Indian category for APAs in which there are relatively low numbers of stops for members of this group.

[5] Given that "East Indian" is comprised of multiple ethnic groups, we have not included a population comparison for this particular group.

[6] In the year 2000, there were an estimated 184,236 migrant and seasonal farm-workers in Washington State, the majority of whom were Hispanic males (*Fact Sheet on Washington Farm-workers*, 2001). In addition, the U.S. Immigration and Naturalization Service estimated that undocumented immigrants, the majority of whom were Hispanic, accounted for up to 40% of Washington's agricultural workforce in 1997 (Employment Security Department, 2000). These individuals are concentrated in Yakima, Okanogan, and Chelan counties, and to a lesser degree in Benton, Douglas, Franklin, Grant, and Skagit Counties (*Fact Sheet on Washington Farm-workers*, 2001).

important to note that certain areas of the state (particularly the Interstate-5 corridor running from the Canadian border to the Oregon border) patrolled by the WSP have a high proportion of out-of-state drivers, and it is probable that these drivers are more likely to be members of racial minority groups than resident in-state drivers.

Table 1—Percent Contacted (Self-Initiated) by Race and APA

(November 1, 2002-June 30, 2004)

APA	White	Black	Native	Asian	Hispanic	East Indian	N
1	78.6	9.4	0.3	6.8	4.1	0.6	5,692
2	75.6	11.3	0.4	6.5	5.6	0.6	46,279
3	85.8	6.3	0.2	3.4	3.8	0.3	43,990
4	85.9	4.0	0.5	4.1	4.1	0.6	43,390
5	70.0	9.1	0.2	11.4	6.2	2.3	29,636
6	64.9	13.9	0.2	9.8	8.6	1.7	34,235
7	76.6	5.0	0.1	9.2	6.1	0.9	49,787
8	76.0	9.1	0.2	6.7	6.3	1.4	28,893
9	86.3	3.1	0.3	3.1	6.1	0.7	28,834
10	93.3	1.0	0.8	1.4	3.1	0.3	10,112
11	63.0	1.5	4.8	1.1	29.1	0.3	33,723
12	44.0	0.9	1.2	0.8	52.6	0.3	11,586
13	75.0	2.2	0.1	1.6	20.6	0.2	44,322
14	86.5	1.2	0.3	0.7	11.2	0.1	23,140
15	97.2	0.4	1.4	0.4	0.5	0.0	16,113
16	90.4	2.4	0.4	1.9	4.2	0.6	19,667
18	96.8	0.9	0.7	0.9	0.7	0.1	11,230
19	94.8	2.1	0.6	1.1	1.2	0.2	74,684
20	93.4	1.9	0.3	2.5	1.2	0.4	15,438
21	88.2	3.4	0.1	2.7	4.8	0.5	38,378
22	90.5	0.6	1.4	0.6	6.5	0.3	14,272
23	89.1	2.2	0.1	2.8	4.6	0.7	27,029
24	88.6	2.4	0.3	2.7	5.1	0.8	24,927
25	82.2	0.5	0.2	0.8	15.9	0.3	42,074
26	88.4	2.1	0.5	2.3	6.1	0.4	40,449
27	83.3	0.4	4.2	0.4	11.3	0.3	15,574
28	82.0	1.5	0.3	1.7	14.1	0.1	18,050
29	76.1	2.2	0.3	1.5	19.7	0.3	18,368
30	84.4	2.4	1.7	5.0	3.6	2.1	30,300
31	86.3	1.5	0.6	2.7	7.9	0.9	29,414
32	89.6	4.2	0.2	3.2	2.6	0.2	19,951
33	83.9	3.3	0.5	5.6	4.9	1.6	70,585
34	91.7	1.6	0.1	2.1	4.0	0.4	37,380
35	93.9	1.0	1.5	1.6	1.8	0.2	37,538
36	87.8	5.0	0.3	3.6	2.8	0.4	76,727
37	90.1	1.6	0.7	2.2	4.8	0.2	26,088
8	90.6	1.0	1.2	1.2	5.2	0.1	11,858
9	95.2	0.7	0.1	1.2	2.4	0.2	20,357
40	94.1	0.6	0.2	1.0	3.9	0.2	2,102
41	81.6	3.7	0.5	6.5	5.5	1.9	26,054
Statewide	84.2	3.6	0.6	3.5	7.1	0.7	1,208,226

Table 2—Percent Contacted Minus Percent in Population by Race and APA
(November 1, 2002-June 30, 2004)

APA	Black	Native	Asian	Hispanic
1	+2.4	-1.1	+1.7	-1.4
2	+4.3	-1.0	+1.4	+0.1
3	-0.7	-1.2	-1.7	-1.7
4	+1.6	-1.0	-0.3	-0.4
5	+4.7	-0.7	+0.6	+0.7
6	**+8.4**	-0.7	-1.0	+3.1
7	-0.4	-0.8	-1.6	+0.6
8	+4.6	-0.7	-4.1	+0.8
9	-2.3	-0.6	-7.7	+0.6
10	-4.4	-0.1	-9.4	-2.4
11	+0.5	+0.3	+0.1	-6.8
12	-0.1	-3.3	-0.3	**+16.7**
13	+0.9	-0.8	-0.4	-0.7
14	0.0	-0.6	-0.2	-0.3
15	+0.1	-6.2	-0.1	-1.5
16	+1.2	-1.2	+1.7	+3.3
18	+0.7	-0.9	+0.5	-1.4
19	+0.5	-0.8	-0.8	-1.6
20	+0.4	-0.4	-3.0	-1.8
21	+1.7	-0.3	-0.5	+0.1
22	+0.3	-1.7	0.0	0.0
23	+1.7	-1.4	+1.5	0.0
24	+2.0	-0.9	+2.0	-0.3
25	-2.5	-0.8	+0.1	-3.5
26	+1.4	-0.4	+0.1	+1.1
27	+0.1	-7.3	0.0	-3.1
28	+0.7	-1.1	+0.9	-12.9
29	+1.2	-0.9	+0.6	-10.4
30	+1.7	-0.9	+2.3	-1.4
31	+1.1	-1.3	+1.2	-3.3
32	+1.8	-0.8	-1.0	-1.4
33	+1.6	-1.4	-0.2	-6.3
34	-0.1	-1.8	-3.7	-7.2
35	+0.3	-3.8	+0.5	-1.2
36	+2.1	-1.3	-0.8	-1.3
37	+1.3	-4.0	-1.0	0.0
38	-0.2	-2.5	+0.1	+1.6
39	+0.5	-2.2	-0.7	-2.3
40	+0.2	-1.0	+0.3	-1.5

We overlaid census data on the proportion of Blacks, Native Americans, Asians and Hispanics in the population of each autonomous patrol area[7] and subtracted the proportion of those contacted (in stops initiated by the WSP) from this figure. We adopt the criterion used in several other studies of racial profiling that differences are not substantively significant as long as the percentage of those contacted in any particular racial group is not more than **five percentage points** greater than the percentage of that group in the resident population[8] (for other relevant benchmarks, see McMahon et al., 2002). Based on this standard criterion, the findings set forth in Table 2 reveal that Blacks are over-represented in contacts compared to their proportion in the resident population in only one of the 40 autonomous patrol areas (Seattle South). Native Americans are not over-represented in contacts relative to their proportion in the population in any of the 40 APAs, nor are Asians. Hispanics are over-represented in contacts relative to their proportion in the population in APA 12 (Sunnyside); however, we believe that this substantial over-representation is due to the fact that migrant farm-workers and undocumented immigrants (who are not included in census counts) are most likely to be resident in that particular APA (see footnote #3).

[7] Census data were not available for APA 41.

[8] Alternative measures of disparity include the "ratio of disparity," "relative differences" and "disparity index" (Fridell, 2004) or what Lamberth (2003a; 2003b; 2004) refers to as "odds ratios." The latter measure is calculated by dividing the percentage of drivers in a particular racial group who are stopped by their percentage in the benchmark population. As Fridell (2004) notes, when the percentage in a particular minority group in both the contacted driver population and the benchmark population is low, the disparity index (and the other 2 alternative measures of disparity) can be misleadingly high. Although there are certain APAs in which the proportion of minorities (particularly Hispanics) contacted is relatively high, at the statewide level no racial minority group represents more than 7.1% of those contacted by the WSP. Thus, in order to maintain consistency in the reporting of our results, and in order to avoid the presentation of potentially misleading findings, our measure of disparity subtracts the percentage of those in each racial group contacted from their percentage in the various benchmarks.

Daylight Stops. As will be discussed further below, the WSP troopers and sergeants we interviewed indicated that they were unable to determine the race of the driver in many of the vehicle contacts they initiate. While we have no reason to doubt this claim, a logical argument would suggest that if racial profiling was in fact occurring it would be more likely to manifest itself in **daylight** stops because officers would be better able to form an impression of the race of individual drivers than at night-time when visibility is likely to be impaired.

While it is true that there may be differences in driving times and habits according to race, which these data cannot address, Table 3 presents findings on the percentage of stops made in daylight hours[9] by race for each APA. These analyses reveal that, while there is some variation in the overall proportion of daylight stops across autonomous patrol areas, a higher proportion of Blacks than Whites are stopped in daylight hours in only three APAs, and only one of these differences is greater than five percent (Colville). The percentage of Native Americans stopped in daylight hours is higher than the percentage of Whites in 11 APAs, but only two of these differences are greater than five percent (Walla Walla and Moses Lake). Asians are over-represented in daylight stops compared to Whites in eight APAs, with four of these differences being greater than five percent (Enumclaw, Moses Lake, Bellingham, and Mount Vernon). There are no APAs in which a higher percentage of Hispanics than Whites are stopped in daylight hours. Finally, in the 25 APAs for which there were at least 50 recorded contacts with East Indians, six show a higher percentage of stops of East Indians compared to Whites in daylight hours. Four of these differences are greater than five percent (Yakima, Wenatchee,

[9] These data were coded such that 7 p.m. to 7 a.m. constituted non-daylight stops. While we realize that there are monthly/seasonal differences in the number of daylight hours, there were no substantial differences in the number of stops over the various months included in the data set. The coding of this variable thus assumes that seasonal/monthly differences in the number of daylight hours will essentially cancel each other out.

Bellingham, and Mount Vernon). While these disparities should be noted, overall this comparison of the proportion of minority compared to white drivers who are contacted by the WSP in daylight hours reveals that minorities for the most part are **under**-represented in daylight stops. *This finding indicates that it is highly unlikely that members of the WSP are engaged in racial profiling at the level of who they choose to pull over for a traffic stop.*

Table 3—Percent Daylight Stops by Race and APA
(November 1, 2002-June 30, 2004)

APA	White	Black	Native	Asian	Hispanic	East Indian
1	58.1	47.4	50.0	50.5	50.0	**N.A.**
2	54.3	44.4	55.0	44.4	45.3	45.1
3	55.4	44.1	55.6	46.6	48.6	56.2
4	57.4	44.6	52.1	47.6	47.1	49.0
5	50.5	42.8	49.1	39.5	43.0	40.7
6	58.7	45.8	40.5	41.5	50.4	54.0
7	57.3	45.6	47.9	48.4	47.1	47.7
8	55.3	44.0	55.0	44.5	38.4	46.1
9	61.7	60.5	60.6	54.5	61.5	63.5
10	74.8	68.0	70.1	**81.5**	68.7	N.A.
11	66.1	56.1	61.5	56.2	61.0	**72.0**
12	71.6	68.0	59.7	73.3	58.4	69.7
13	57.2	40.0	47.5	42.1	42.3	44.4
14	69.4	65.2	**78.8**	65.5	55.3	N.A.
15	68.0	**74.3**	68.6	57.4	51.9	N.A.
16	69.1	66.5	68.2	62.8	66.6	66.4
18	67.7	55.6	66.2	67.7	63.0	N.A.
19	56.1	36.1	59.1	46.6	49.7	50.8
20	69.2	57.9	71.2	57.8	67.2	N.A.
21	52.5	41.1	52.5	45.7	42.8	43.6
22	78.4	72.8	74.4	76.9	69.9	**N.A.**
23	55.9	55.9	55.6	54.7	45.0	57.4
24	57.4	38.4	47.8	39.3	39.8	38.5
25	65.0	69.1	64.6	66.8	49.3	73.2
26	63.0	59.5	64.2	59.8	55.7	57.5
27	78.2	82.5	63.7	70.8	70.6	N.A.
28	73.9	64.8	65.1	76.6	60.1	N.A.
29	67.2	65.5	**72.2**	**73.0**	59.6	N.A.
30	48.8	43.0	53.5	**56.0**	47.0	**55.2**
31	49.9	38.7	46.0	**55.1**	33.4	**59.6**
32	57.3	32.3	46.5	40.1	43.2	**N.A.**
33	65.2	47.6	58.9	54.3	50.1	58.5
34	59.8	46.6	61.9	53.8	49.0	59.5
35	64.2	53.9	63.9	61.3	53.5	51.4
36	58.1	42.0	62.9	46.9	49.5	50.0
37	67.0	67.0	62.0	64.6	54.3	N.A.
38	57.6	54.7	50.3	57.1	46.2	**N.A.**
39	77.0	76.1	75.9	73.7	62.6	**N.A.**
40	78.2	76.5	76.9	81.7	70.1	N.A.
41	60.6	47.0	52.6	51.8	49.3	59.0

Radar and Aircraft Patrol Contacts. A third benchmark that is available for our systematic analysis is the comparison of traffic stop contact data for drivers who have been contacted as a result of being identified as speeding via *radar spotting* and *aircraft patrol* with data recorded from all other traffic stops. This particular benchmark statistic constitutes a measure of **both** driving quantity and driving quality, and has the very important additional advantage of being a "blind" count—that is, WSP troopers operating radar units and conducting aircraft patrols seldom if ever can determine the race of motorists identified as speeders by these traffic safety enforcement techniques.

The figures displayed in Table 4 present findings on the percent of drivers contacted by the WSP as a result of radar spotting or aircraft patrols, displayed by race and by APA. The figures presented in Table 5 subtract the percentage contacted via radar or aircraft patrols (by race) from the percentage contacted by the WSP as a result of all other self-initiated contacts. These comparisons represent a rather telling comparison of contacts by race for a "blind" spotting of violators as opposed to the selection of violators by the standard methods of officer-initiated motorist detention. Both Table 4 and Table 5 feature the same format as the previous tables, listing both race/ethnicity breakdowns for each APA and a statewide summary.

Table 4—Percent Contacted (Speeding -Radar and Aircraft Patrols) by Race and APA
(November 1, 2002-June 30, 2004)

APA	White	Black	Native	Asian	Hispanic	East Indian	N
1	79.8	8.3	0.3	7.0	3.6	0.8	1,845
2	78.2	9.0	0.3	6.4	5.1	0.8	9,808
3	86.4	6.1	0.2	3.4	3.3	0.3	15,344
4	85.0	4.0	0.3	4.8	3.9	0.9	15,878
5	71.4	7.9	0.1	11.3	6.0	2.6	6,018
6	70.2	11.2	0.2	8.1	7.4	1.7	9,531
7	77.5	4.7	0.1	9.2	5.3	2.2	21,801
8	79.5	7.6	0.2	5.8	5.5	1.2	13,106
9	85.8	3.2	0.4	3.1	6.4	0.7	16,699
10	93.8	0.8	0.6	1.6	2.9	0.3	7,106
11	68.6	1.5	3.7	1.4	24.1	0.4	15,227
12	54.8	1.5	1.0	1.3	40.7	0.4	4,163
13	76.7	2.1	0.1	1.5	18.9	0.3	18,186
14	87.5	1.2	0.3	0.7	10.1	0.1	15,277
15	97.4	0.4	1.2	0.5	0.4	0.0	8,369
16	90.3	2.6	0.4	2.0	4.1	0.6	14,053
18	97.0	0.7	0.7	0.9	0.6	0.1	5,381
19	95.6	1.4	0.6	1.0	1.0	0.1	29,044
20	93.6	2.0	0.4	2.3	1.3	0.4	11,220
21	89.0	2.9	0.1	2.8	4.4	0.6	13,994
22	91.4	0.5	1.0	0.7	6.0	0.2	10,025
23	86.9	3.0	0.1	3.8	4.5	0.9	11,958
24	88.4	2.9	0.3	3.4	3.8	1.0	13,429
25	85.5	0.6	0.2	1.0	12.2	0.3	23,022
26	89.0	2.0	0.5	2.4	5.5	0.5	26,697
27	86.1	0.4	3.0	0.5	9.6	0.3	10,430
28	86.5	1.5	0.2	2.2	9.1	0.4	12,056
29	80.9	2.2	0.2	2.1	14.3	0.3	9,803
30	83.1	2.4	1.1	6.9	2.9	2.9	13,196
31	87.9	1.8	0.5	3.9	4.6	1.3	12,671
32	90.0	4.1	0.2	3.0	2.5	0.1	11,032
33	85.5	2.8	0.3	6.0	3.5	1.7	30,838
34	92.0	1.5	0.1	2.1	3.5	0.5	20,519
35	93.9	1.0	1.3	1.9	1.6	0.3	22,248
36	87.8	5.0	0.2	3.6	2.7	0.3	33,624
37	90.7	2.0	0.6	2.5	3.5	0.3	14,560
38	92.1	1.2	0.8	1.3	3.8	0.1	5,881
39	95.6	0.7	0.1	1.2	1.9	0.2	15,339
40	94.3	0.6	0.2	1.1	3.5	0.2	9,037
41	82.3	3.1	0.3	7.5	4.4	2.1	10,790
Statewide	86.3	2.9	0.5	3.3	5.7	0.8	784,468

Table 5—Percent Self-Initiated Contact (not including radar and aircraft patrols) Minus Percent Contacted via Radar and Aircraft Patrols By Race and APA
(November 1, 2002-June 30, 2004)

APA	Black	Native	Asian	Hispanic	East Indian
1	+1.6	0.0	-0.3	+0.8	-0.3
2	+2.9	+0.1	+0.1	+0.6	-0.3
3	+0.3	0.0	0.0	+0.7	0.0
4	0.0	+0.3	-0.8	+0.4	-0.5
5	+1.5	+0.1	+0.1	+0.3	-0.4
6	+3.6	0.0	+2.4	+1.6	0.0
7	+0.6	0.0	-0.1	+1.3	-0.1
8	+2.7	0.0	+2.7	+1.5	+0.4
9	-0.3	-0.1	0.0	-0.9	0.0
10	+0.8	+0.6	-0.6	+0.8	0.0
11	0.0	+2.0	-0.5	**+9.0**	-0.2
12	-0.9	+0.4	-0.8	**+18.6**	-0.2
13	+0.1	0.0	+0.1	+2.9	+0.1
14	-0.1	+0.1	+0.1	+2.9	0.0
15	+0.1	+0.4	-0.1	0.0	0.0
16	-0.7	+0.2	-0.3	+0.5	-0.2
18	+0.4	-0.1	+0.1	+0.1	0.0
19	+0.9	0.0	+0.1	+0.3	+0.1
20	-0.2	-0.1	+0.8	-0.1	+0.1
21	+0.7	0.0	-0.1	+0.6	+0.2
22	+0.2	+1.3	-0.2	+1.5	+0.1
23	-1.4	0.0	-1.9	+0.3	-0.4
24	-1.1	0.0	-1.7	+2.7	-0.4
25	-0.3	+0.1	-0.4	**+8.0**	-0.1
26	+0.3	+0.1	-0.2	+1.8	-0.2
27	-0.1	+3.4	-0.2	**+5.3**	-0.1
28	-0.1	+0.4	-1.5	**+15.0**	-0.2
29	0.0	+0.2	-1.3	**+11.6**	-0.1
30	0.0	+1.0	-3.4	+2.2	-1.5
31	-0.5	+0.3	-2.1	**+5.8**	-0.7
32	+0.2	0.0	+0.5	+0.2	+0.1
33	+1.1	+0.4	-0.7	+2.5	-0.2
34	-0.1	0.0	-0.1	+1.0	-0.1
35	-0.1	+0.3	-0.8	+0.7	-0.2
36	-0.1	+0.1	-0.1	+0.2	-0.1
37	+0.8	+0.3	-0.8	+2.9	-0.2
38	-0.5	-0.6	+0.1	-0.1	-0.1
39	-0.2	+0.1	+0.2	+1.8	-0.2
40	-0.1	+0.5	-0.5	+1.6	0.0
41	+0.9	+1.9	-1.7	+2.1	-0.3
Statewide	+1.4	+0.2	+0.4	+2.5	-0.1

Adhering to the above-referenced standard of differences of greater than five percent being considered substantively significant, this table reveals that there is not a single APA in which Blacks, Native Americans, Asians, or East Indians are over-represented in contacts initiated as a result of a comparison of radar or aircraft patrols contacts with all other officer-initiated contacts. There are, however, seven APAs (Yakima, Sunnyside, Wenatchee, Okanogan, Ephrata, Moses Lake, and Mount Vernon) in which Hispanics are shown to be over-represented. This disparity for Hispanics in these seven APAs should not be overlooked, and this set of findings is deserving of the close attention of District Commanders and Headquarters alike. Even considering these findings for seven APAs, however, the overall findings regarding the comprehensive comparison of "blind stops" with officer-initiated stops provide no evidence of systemic racial profiling in contacts initiated by officers of the WSP.

Calls for Service and Self-Initiated Physical Assists. An additional benchmark available to us is to compare traffic stop data with contacts that are the result of calls for service and self-initiated physical assists. This benchmark can also be considered a "blind" benchmark, in that it is unlikely that WSP members would know the race of the individual assisted in the majority of such contacts. Table 6 displays findings on the percent of drivers contacted by the state patrol as a result of calls for service and physical assists by race and APA, while the cells in Table 7 represent the percentage figure obtained after subtracting the percentage of individuals contacted as a result of calls for service and physical assists from the percentage of all self-initiated contacts.

Table 6—Percent Contacted (Calls for Service and Self-Initiated Vehicle Assists) by Race and APA
(November 1, 2002-June 30, 2004)

APA	White	Black	Native	Asian	Hispanic	East Indian	N
1	83.2	4.7	0.0	7.0	5.1	0.0	316
2	75.9	9.3	0.9	7.9	5.5	0.3	1,102
3	85.5	6.4	0.2	2.3	4.6	0.6	1,272
4	81.8	6.5	0.6	2.2	8.3	0.0	325
5	71.9	7.8	0.3	9.8	7.1	0.8	1,589
6	66.5	16.6	0.3	6.6	7.9	1.2	669
7	75.5	3.9	0.1	10.1	8.2	1.4	722
8	71.6	8.3	0.4	12.4	6.1	1.0	672
9	85.3	3.3	0.7	0.0	10.0	0.0	150
10	86.5	1.0	2.9	1.9	5.8	1.9	104
11	70.2	0.7	4.6	0.0	23.8	0.0	151
12	36.8	2.6	10.5	0.0	44.7	2.6	38
13	81.5	1.2	0.0	0.2	17.1	0.0	901
14	78.8	2.9	1.5	0.7	16.1	0.0	137
15	87.9	3.0	3.0	3.0	3.0	0.0	33
16	89.0	4.4	0.0	0.7	5.9	0.0	136
18	90.4	3.8	3.8	0.0	1.9	0.0	52
19	90.4	3.9	1.5	1.4	2.4	0.1	918
20	91.1	3.7	0.5	1.6	1.1	1.6	190
21	85.3	4.0	0.3	2.1	7.7	0.4	921
22	81.8	0.0	4.5	2.3	6.8	2.3	44
23	86.3	3.8	0.4	2.1	5.1	2.1	234
24	82.1	4.0	1.5	1.5	9.5	1.5	274
25	70.7	0.9	1.1	1.7	24.5	1.1	351
26	78.7	5.5	1.2	2.8	9.5	1.6	253
27	78.0	0.0	11.9	1.7	8.5	0.0	59
28	53.8	5.4	1.1	1.1	38.7	0.0	93
29	69.4	2.0	2.0	1.0	25.5	0.0	98
30	79.5	3.8	5.6	3.4	5.1	1.7	234
31	76.1	2.8	4.6	2.8	12.8	0.9	109
32	86.7	3.3	3.3	6.7	0.0	0.0	30
33	82.3	3.8	0.8	6.1	5.6	1.2	1,064
34	93.2	1.0	0.4	2.3	2.5	0.4	512
35	89.8	2.3	0.8	1.6	5.5	0.0	128
36	85.9	3.7	1.7	3.2	5.2	0.1	754
37	93.2	0.0	0.6	0.0	5.6	0.0	162
38	90.2	1.1	2.3	0.0	6.3	0.0	174
39	100.0	0.0	0.0	0.0	0.0	0.0	42
40	75.0	12.5	0.0	0.0	12.5	0.0	8
41	83.9	1.8	0.0	6.4	5.7	2.0	653
Statewide	80.5	5.1	0.9	4.6	7.7	0.9	15,674

Table 7—Percent Self-Initiated Contact Minus Percent Contacted Calls for Service and Self-Initiated Vehicle Assist by Race and APA
(November 1, 2002-June 30, 2004)

APA	Black	Native	Asian	Hispanic	East Indian
1	+4.7	+0.3	-0.2	-1.0	+0.6
2	+2.0	-0.5	-1.4	+1.0	+0.3
3	-0.1	0.0	+1.1	-0.8	-0.3
4	-2.5	-0.1	+1.9	-4.2	+0.6
5	+1.3	-0.1	+1.6	-0.9	+1.5
6	-2.7	-0.1	+3.2	+0.7	+0.5
7	+1.1	0.0	-0.9	-2.1	-0.5
8	+0.8	-0.2	-5.7	+0.2	+0.4
9	-0.2	-0.4	+3.1	-3.9	+0.7
10	0.0	-1.9	-0.5	-2.7	-1.6
11	+0.8	+0.2	+1.1	**+5.3**	+0.3
12	-1.7	-9.3	+0.8	**+7.9**	-2.3
13	+1.0	+0.1	+1.4	+3.5	+0.2
14	-1.7	-1.2	0.0	-4.9	+0.1
15	-2.6	-1.6	-2.6	-2.5	0.0
16	-2.0	+0.4	+1.2	-1.7	+0.6
18	-2.9	-3.1	+0.9	-1.2	+0.1
19	-1.8	-0.9	-0.3	-1.2	+0.1
20	-1.8	-0.2	-0.9	+0.1	-1.2
21	-0.6	+0.2	+0.6	-2.9	+0.1
22	+0.6	-3.1	-1.7	-0.3	-2.0
23	-1.6	-0.3	+0.7	-0.5	-1.4
24	-1.6	-1.2	+1.2	-4.4	-0.7
25	-0.4	-0.9	-0.9	-8.6	-0.8
26	-3.4	-0.7	-0.5	-3.4	-1.2
27	+0.4	-7.7	-1.3	+2.8	+0.3
28	-3.9	-0.8	+0.6	-24.6	+0.1
29	+0.2	-1.7	+0.5	-5.8	+0.3
30	-1.4	-3.9	+1.6	-1.5	+0.4
31	-1.3	-4.0	-0.1	-4.9	0.0
32	+0.9	-3.1	-3.5	+2.6	+0.2
33	-0.5	-2.8	-1.1	-0.7	+0.4
34	+0.6	-0.3	-0.2	+1.5	0.0
35	-1.3	+0.9	0.0	-3.7	+0.2
36	+1.3	-1.4	+0.4	-2.4	+0.3
37	+1.6	+0.1	+2.2	-0.8	+0.2
38	-0.1	-1.1	+1.2	-0.9	+0.1
39	+0.7	+0.1	+1.2	+2.4	+0.2
40	-11.9	+0.2	+1.0	-8.6	+0.2
41	+1.9	+0.5	+0.1	-0.2	-0.1
Statewide	-1.5	-0.3	-1.1	-0.6	-0.2

The findings set forth in Table 7 indicate that there are no APAs in which the percentage of Blacks, Native Americans, Asians, or East Indians contacted as a result of self-initiated WSP activity is more than five percentage points greater than those contacted as a result of calls for service and self-initiated physical assists. For Hispanics, there are two APAs (Yakima and Sunnyside) for which this difference is greater than five percent. While these disparities for Hispanics in Yakima and Sunnyside should be noted as in the previous comparison of blind and self-initiated contacts, similar to the other four benchmark comparisons presented above these findings indicate that the WSP is not engaged in systemic racial profiling at the level of the motorists they contact.

Involvement in Accidents. Perhaps the most effective benchmark is to compare traffic stop contact data with rates of involvement in roadway accidents. These traffic accident data can be seen as measuring both the quantity and the quality of driving in a particular area. Most importantly, traffic accident data also constitute racially "blind" measures since WSP troopers do not know the race of those they will contact prior to arriving at the scene of the accident.

Table 8 displays findings on the percent of drivers contacted by the WSP as a result of their involvement in motor vehicle accidents by race and by APA, and the figures presented in Table 9 subtract the percentage involved in accidents (by race) from the percentage contacted as a result of self-initiated activity by the WSP in each APA. The results documented in Table 9 reveal that there is not a single APA in which Blacks, Native Americans, Asians, Hispanics, or East Indians are over-represented in contacts as compared to accident data. These findings are also worth considering in the context of APAs for which there was over-representation in contacts revealed in the use of alternative benchmarks. For instance, results reported in Table 2 indicate that there were 8.4% more Blacks contacted by the WSP than were represented in the

population data for Seattle South; however, the difference between contacts of Blacks and their involvement in collisions responded to by the WSP is only 3.5%. Even more revealing are the data for Sunnyside, where comparisons to population data and other benchmarks suggested a significant over-representation of Hispanics in self-initiated WSP contacts. In that APA, Hispanics constituted 52.6% of those stopped in self-initiated WSP contacts, and 52.8 percent of those involved in accidents responded to by WSP members.

Table 8—Percent Involved in Collisions by Race and APA
(November 1, 2002-June 30, 2004)

APA	White	Black	Native	Asian	Hispanic	East Indian	N
1	78.1	10.8	0.4	7.0	3.4	0.4	472
2	76.9	8.6	0.4	7.6	5.5	0.8	3,252
3	86.1	4.7	0.3	3.7	4.8	0.3	2,986
4	87.2	3.4	0.6	3.7	4.0	0.4	2,972
5	71.2	6.4	0.1	12.2	6.6	2.6	4,705
6	65.4	10.4	0.2	10.5	9.8	2.5	2,726
7	76.3	3.4	0.2	10.3	6.8	1.9	3,088
8	72.8	7.3	0.3	8.4	9.1	1.7	2,715
9	79.9	3.1	0.2	5.2	9.6	1.2	830
10	89.1	0.0	5.1	3.1	2.0	0.8	256
11	63.4	1.2	3.8	1.6	29.5	0.1	811
12	42.1	1.2	1.9	1.2	52.8	0.6	515
13	72.4	1.1	0.5	1.2	23.4	0.7	1,056
14	82.6	1.7	1.1	0.0	14.2	0.3	351
15	94.3	1.1	3.7	0.3	0.3	0.3	352
16	88.1	1.5	0.6	2.7	6.3	0.6	336
18	97.4	1.1	0.4	0.7	0.4	0.0	267
19	94.6	1.5	0.8	1.3	1.4	0.1	2,298
20	88.3	2.9	0.3	4.5	2.9	1.1	376
21	87.7	2.4	0.0	3.6	5.4	0.5	2,013
22	84.0	0.5	2.4	0.0	11.2	1.9	206
23	84.3	2.5	0.1	3.4	8.3	1.0	816
24	90.3	1.4	0.4	2.4	5.1	0.4	928
25	78.0	0.7	0.3	1.4	18.6	0.6	715
26	81.2	2.0	0.9	3.4	11.3	0.7	949
27	76.0	0.3	7.9	0.9	14.6	0.0	329
28	72.2	0.8	0.8	1.6	23.8	0.5	370
29	67.6	1.0	0.2	1.4	29.2	0.5	414
30	83.6	1.2	2.6	4.2	5.5	2.3	1,376
31	86.2	1.7	1.0	3.0	7.2	0.9	1,000
32	89.6	2.6	0.6	4.0	3.2	0.0	346
33	83.8	2.0	0.6	5.5	6.4	1.5	2,735
34	91.1	1.0	0.1	2.9	4.3	0.4	1,288
35	89.2	1.3	4.5	1.8	2.8	0.2	826
36	89.9	3.7	0.2	3.6	2.2	0.0	2,209
37	87.0	0.9	2.3	2.2	7.0	0.0	555
38	87.9	1.3	2.4	1.3	6.3	0.0	746
39	90.6	0.3	0.0	1.4	7.4	0.0	350
40	96.5	0.4	0.0	1.2	2.0	0.0	254
41	83.0	3.2	0.5	6.3	5.0	1.8	1,329
Statewide	80.7	3.9	0.7	5.4	7.7	1.1	50,118

Table 9—Percent Contacted Minus Percent Involved in Collisions by Race and APA
(November 1, 2002-June 30, 2004)

APA	White	Black	Native	Asian	Hispanic	East Indian
1	+1.3	-1.4	-0.1	-0.2	+0.7	+0.2
2	-1.3	+2.7	0.0	-1.1	-0.1	-0.2
3	-0.2	+1.6	-0.1	-0.3	-1.0	0.0
4	-1.3	+0.7	-0.1	+0.4	+0.1	+0.2
5	-1.2	+2.7	+0.1	-0.8	-0.4	-0.3
6	-0.5	+3.5	0.0	-0.7	-0.8	-0.8
7	+0.3	+1.6	-0.1	-1.1	-0.7	+0.2
8	+3.2	+1.8	-0.1	-1.7	-2.8	-0.3
9	+6.4	0.0	+0.1	-2.1	-3.5	-0.5
10	+4.2	+1.0	-4.3	-1.7	+1.1	-0.5
11	-0.4	+0.3	+1.0	-0.5	-0.4	-0.2
12	+1.9	-0.3	-0.7	-0.4	-0.2	-0.3
13	+2.6	+1.1	-0.4	+0.4	-2.8	-0.5
14	+3.9	-0.5	-0.8	+0.7	-3.1	-0.2
15	+2.9	-0.7	-2.3	-0.1	+0.2	+0.3
16	+2.3	+0.9	-0.2	-0.8	-2.1	0.0
18	-0.6	-0.2	+0.3	+0.2	+0.3	+0.1
19	+0.2	+0.6	-0.2	-0.2	-0.2	+0.1
20	+5.1	-1.0	0.0	-2.0	-1.7	-0.7
21	+0.5	+1.0	+0.1	-0.9	-0.6	0.0
22	+6.5	+0.1	-1.0	+0.6	-4.7	-1.6
23	+4.8	-0.3	0.0	-0.6	-3.7	-0.3
24	-1.7	+1.0	-0.1	+0.3	0.0	+0.4
25	+4.0	-0.2	-0.1	-0.6	-2.8	-0.3
26	+7.2	+0.1	-0.4	-1.1	-5.2	-0.3
27	+7.3	+0.1	-3.7	-0.5	-3.6	+0.3
28	+9.8	+0.7	-1.2	+1.2	-9.7	0.0
29	+8.5	+1.2	+0.1	+0.1	-9.5	+0.1
30	+1.0	+1.2	-0.9	+0.8	-1.9	-0.2
31	+0.1	-0.2	-0.5	-0.3	+0.7	0.0
32	0.0	+1.6	-0.4	-0.8	-0.5	+0.2
33	+0.1	+1.1	-0.1	+0.1	-1.5	+0.1
34	+0.6	+0.6	0.0	-0.8	-0.3	0.0
35	+4.7	-0.3	-3.0	-0.2	0.0	0.0
36	-2.1	+1.3	+0.1	0.0	+0.6	+0.2
37	+3.1	+0.7	-1.6	0.0	-2.2	+0.2
38	+2.7	-0.3	-1.2	-0.1	-1.1	+0.1
39	+4.6	+0.4	+0.1	-0.2	+5.1	+0.2
40	-2.4	+0.2	+0.2	-0.2	+1.9	+0.2
41	-1.4	+0.5	0.0	+0.2	+0.5	+0.1
Statewide	+3.5	-0.3	-0.1	-1.9	-0.6	+0.4

To conclude this section, while the disparities for Hispanics in a small number of APAs using some benchmarks should be noted, comparisons of contact rates to: census data; daylight versus non-daylight stops; contacts initiated as a result of radar and aircraft patrols; contacts initiated as a result of calls for service or self-initiated physical assists; and contacts initiated as a result of involvement in accidents tend to indicate convincingly that *the Washington State Patrol is not engaged in racial profiling at the level of which drivers they contact*. In addition to the fact that these analyses suggest that there is no racial bias at the level of contact, this lack of evident racial profiling is also related to the fact that in many of the WSP field contacts agency troopers are unable to determine the race or ethnicity of traffic law violators when deciding to pull them over. As one sergeant noted, "Especially at night there's no way you can tell unless you purposely set up somehow where your headlights might be shining on a stretch of highway. I've seen that on the news done by different officers in different states. I've never known of any (troopers) in this area that do that." Similarly, a trooper commented during a focus group session thusly: "I can't see what color they are. But they were breaking the law." Several other troopers and sergeants in focus group sessions and interviews echoed this sentiment. Most participants in the citizen focus groups also did not believe that WSP troopers were biased with respect to who they stopped, and several also noted the difficulty troopers would have in determining the race of the driver prior to the contact. As one citizen aptly noted, "they cannot see who you are." Given these noteworthy considerations raised by troopers and these citizen observations, the consistent findings documented in this report of a lack of evidence of racial profiling are not surprising.

While not necessarily surprising to persons familiar with Washington State Patrol and its pioneering efforts to eliminate biased policing, the findings reported here do need to be placed in the context of other studies of racial profiling and biased policing in other states and in smaller

jurisdictions. Many of these empirical studies based on data similar to those we have access to for the WSP suggest that many law enforcement agencies likely **do** engage in racial profiling at the level of original driver contact.

While the authors of some studies[10] have reported no evidence of racial disproportions in those contacted by law enforcement (California Highway Patrol, 2002; Edwards et al., 2002 (Louisville, Kentucky); Carter, Katz-Bannister, and Schafer, 2002 (Lansing, Michigan); Florida Highway Patrol, 2003; Iowa Division of Criminal and Juvenile Justice Planning, 2003; and Texas Department of Public Safety, 2002), numerous others have reached the opposite conclusion based on their analyses. At the level of local jurisdictions, clear evidence of racial disproportion in contacts have been found in Boston (Latour and Dedman, 2003a); in Cincinnati (Eck, Liu, Bostaph, 2003); in Coconino County, Arizona (Solop, 2002); in Denver (Thomas, 2002); in Los Angeles (Leovy, 2001); in Minneapolis (Council on Crime and Justice, 2001); in New York (New York Attorney General's Office, 1999); in Richmond, Virginia (Smith and Petrocelli, 2001); in Riverside (Gaines, 2003); in Sacramento (Greenwald, 2001); in San Diego (Cordner, Williams, and Velasco; 2001); in San Francisco (Schlosberg, 2002); in San Jose (San Jose Police Department, 1999); in Seattle (Davila, 2002); and in Tacoma (Mulick and Sherman, 2003), among others. At the state level, evidence of racial disproportions in traffic stops have been found in Connecticut (Cox et al., 2001); in Maryland (Lamberth, 1997); in Massachusetts (Farell et al., 2004); in Minnesota (Minnesota Statewide Racial Profiling Report, 2003); in Missouri (Missouri Attorney General's Office, 2003; see also Rojek, Rosenfeld and Decker, 2004); in New Jersey (Lamberth, 1996); in North Carolina (Smith et al., 2003); and in Rhode

[10] It is important to note that these studies differ widely with respect to the quality of data collected and the benchmarks used to determine if racial disproportions in traffic stops exist. It is also important to note that our review here is not intended to be exhaustive.

Island (Farrell et al., 2003). Evidence of racial disparity in traffic stop contacts has also been documented at the national level (U.S. Department of Justice; 2000; see also Engel and Calnon, 2004a).

To conclude this section, it is worth considering three additional field observation-based studies conducted by Lamberth (2003a; 2003b; 2004). In Ann Arbor, Michigan, Lamberth (2004) conducted observations of the race of motorists at seven locations and compared these benchmarks to stop data through the calculation of odds ratios. For Blacks, Lamberth reports an odds ratio of 1.5 which he argues "falls in the benign range," leading him to conclude that "there is no profiling in the stops of black motorists." Lamberth (2003a) used similar methods and measures in a study of the San Antonio police department, and reports an odds ratio of 1.3 for Blacks and 1.2 for Hispanics. In Kansas, Lamberth (2004) studied 10 law enforcement agencies scattered throughout the state; most relevant for our purposes were his findings for the Kansas Highway Patrol. The overall odds ratios for being stopped by the Kansas Highway Patrol were 3.03 for Blacks and 3.12 for Hispanics. Although for the reasons mentioned above we have not reported odds ratios for our benchmark comparisons, it is notable that comparing the racial characteristics of those stopped as a result of self-initiated WSP contacts to those contacted as a result of involvement in accidents (statewide), odds ratios of .92 for Blacks; .86 for Native Americans, .65 for Asians, .92 for Hispanics, and .64 for East Indians can be reported. These odds ratios indicate that members of all five major minority groups examined in this study of the WSP are **less** likely to be contacted than their involvement in accidents would predict.

Our findings of a lack of bias at the level of contact are also consistent with those of Smith et al. (2003) documented in North Carolina. Smith and his colleagues found that racial disparity in vehicle stops in that state was much higher among contacts made by local officers

than by members of the North Carolina State Highway Patrol. Similarly, the *Boston Globe's* study of traffic stops in the State of Massachusetts (Latour and Dedman, 2003b) concluded the following: "The Massachusetts State Police stands out for its fairness [and] its evenhanded toughness." The same can be said of the WSP.

Citations

Table 10 sets forth findings on the percentage of those contacted in each APA who were issued citations, broken down by race. The findings reported in this table indicate that Blacks were more likely to be issued citations than Whites in 27 of 40 APAs, Native-Americans were more likely to be issued citations than Whites in 38 APAs, Asians in 25 APAs, Hispanics in 39 APAs, and East Indians in 26 APAs.

While these data could be interpreted as a clear indication that WSP troopers are more likely to issue citations to members of minority groups than to non-minority drivers, as was pointed out in our August 2003 report there are a number of very important differences across the various racial groups with respect to the number of violations observed and the seriousness of those violations which influence the decision of WSP officers to issue citations after making a traffic stop. The differences across racial and ethnic groups in these important independent variables that were outlined in our earlier (August) report are also revealed in the November 2002-June 2004 data.

Table 10—Percent Cited by Race and APA
(November 1, 2002-June 30, 2004)

APA	White	Black	Native	Asian	Hispanic	East Indian
1	30.8	30.4	44.4	32.9	39.0	34.3
2	39.4	41.0	54.4	38.5	48.2	45.1
3	37.8	35.6	57.6	37.0	48.7	28.1
4	48.2	46.9	62.4	50.5	54.9	54.8
5	32.6	34.5	56.6	30.5	41.2	28.9
6	36.3	40.7	44.3	35.2	45.6	35.3
7	43.7	48.1	52.1	45.3	50.6	44.5
8	30.9	33.4	38.3	30.2	42.8	28.3
9	39.1	43.9	50.0	38.1	53.1	39.4
10	21.2	24.3	32.5	26.7	32.9	25.8
11	33.2	33.0	34.5	32.2	43.4	32.7
12	29.3	36.9	35.4	31.1	43.2	24.2
13	37.2	41.4	57.5	31.8	42.8	32.2
14	32.2	34.5	57.5	23.4	45.4	10.3
15	23.4	32.9	37.2	25.0	29.9	16.7
16	46.0	56.8	56.8	55.1	55.3	50.0
18	37.3	42.4	50.0	49.0	58.9	36.4
19	38.3	40.3	57.1	34.7	43.8	35.6
20	23.9	18.1	23.1	26.4	30.2	15.4
21	41.6	40.8	57.5	37.4	49.2	42.5
22	26.4	27.2	36.4	31.9	40.9	37.8
23	43.1	55.9	50.0	56.5	56.0	48.1
24	35.8	45.3	52.2	46.1	45.1	46.3
25	28.6	36.1	42.7	36.4	33.5	31.7
26	33.0	41.8	45.6	42.6	41.1	48.6
27	17.1	26.3	26.4	29.2	31.9	25.0
28	41.1	47.6	25.4	58.0	38.0	64.9
29	29.0	38.3	55.6	34.1	39.9	29.2
30	39.8	39.2	54.9	50.6	51.8	50.5
31	37.5	49.7	55.6	51.7	50.2	57.4
32	34.2	26.5	51.2	30.2	37.5	36.7
33	40.2	40.2	52.8	44.1	47.6	43.7
34	41.6	36.4	54.8	40.8	48.9	39.9
35	40.2	46.7	53.6	48.3	44.8	51.4
36	33.3	35.2	39.6	31.9	35.9	36.3
37	46.7	50.9	52.9	50.3	48.7	56.1
38	41.9	34.2	59.4	34.7	53.5	54.5
39	53.1	62.3	75.9	57.1	56.1	70.6
40	37.0	30.9	57.7	43.3	50.1	28.0
41	48.3	43.3	54.0	53.1	54.1	50.0

Table 11 presents findings on the average number of violations of those contacted by the WSP by race for the 40 APAs. At the state level, Whites have an average of 1.62 violations per

contact; Blacks 1.82; Native Americans 1.89; Asians 1.62; Hispanics 1.82; and East Indians 1.54. Blacks have a higher mean number of violations than Whites in 32 of 40 APAs, Native Americans have a higher mean number of violations than Whites in 39 APAs, Asians have a higher mean number of violations than Whites in only 11 APAs, and Hispanics have a higher mean number of violations than Whites in all 40 APAs. Finally, East Indians exceed White mean violations in only three APAs.

Table 11—Average Number of Violations by Race and APA (November 1, 2002-June 30, 2004)

APA	White	Black	Native	Asian	Hispanic	East Indian
1	1.53	1.68	1.67	1.55	1.76	1.17
2	1.70	1.94	2.25	1.71	1.97	1.47
3	1.85	1.92	2.52	1.85	2.07	1.68
4	1.85	1.95	2.14	1.77	2.08	1.68
5	1.76	1.96	2.30	1.81	1.98	1.72
6	1.74	2.01	1.90	1.78	1.98	1.70
7	1.61	1.77	1.98	1.61	1.88	1.60
8	1.67	1.77	1.58	1.62	1.80	1.69
9	1.61	1.69	1.88	1.67	1.82	1.53
10	1.88	2.02	2.03	1.86	1.92	1.77
11	1.46	1.54	1.77	1.42	1.67	1.34
12	1.70	1.65	1.93	1.51	1.86	1.85
13	1.54	1.74	1.83	1.56	1.71	1.41
14	1.60	1.70	1.74	1.45	1.80	1.55
15	1.55	1.76	1.80	1.38	1.57	1.50
16	1.31	1.39	1.53	1.30	1.43	1.24
18	1.49	1.68	1.64	1.50	1.60	1.73
19	1.64	1.84	1.80	1.69	1.73	1.58
20	1.39	1.40	1.60	1.46	1.50	1.46
21	1.80	1.99	2.15	1.71	2.03	1.61
22	1.50	1.44	1.79	1.43	1.56	1.35
23	1.82	1.82	2.06	1.65	2.11	1.57
24	1.55	1.53	1.58	1.41	1.77	1.32
25	1.69	1.62	2.24	1.71	1.91	1.60
26	1.53	1.63	1.84	1.49	1.71	1.43
27	1.41	1.54	1.80	1.62	1.73	1.25
28	1.43	1.53	1.67	1.31	1.86	1.23
29	1.64	1.68	1.78	1.60	1.72	1.60
30	1.76	1.80	2.31	1.49	2.11	1.47
31	1.62	1.69	1.99	1.40	2.04	1.37
32	1.58	1.54	1.86	1.55	1.78	1.53
33	1.54	1.71	1.99	1.46	1.79	1.42
34	1.49	1.57	1.55	1.44	1.67	1.48
35	1.60	1.70	2.01	1.50	2.00	1.40
36	1.64	1.76	1.74	1.60	1.76	1.52
37	1.34	1.35	1.56	1.32	1.43	1.26
38	1.65	1.62	2.01	1.67	1.84	2.18
39	1.38	1.30	1.48	1.32	1.57	1.12
40	1.45	1.46	1.73	1.43	1.70	1.28
41	1.66	1.84	2.04	1.66	1.89	1.58
Statewide	1.62	1.82	1.89	1.62	1.82	1.54

Table 12 presents very important findings on the *average violation seriousness score*[11] by race for each of the 40 WSP autonomous patrol areas. Statewide, those drivers identified by WSP troopers as East Indian in ethnicity have the lowest average seriousness score calculated at .09, followed by Asian drivers computed at .13 and White drivers figured at .17. In contrast, the average seriousness score for Hispanic drivers was .27, for Black drivers it was .29, and for Native American drivers the much higher rate of .43 was calculated. When investigated at the APA level, Black drivers who had been pulled over by a WSP trooper had higher average seriousness scores than White drivers who were stopped in 36 APAs, while Native American drivers contacted by the WSP had higher average seriousness scores than White drivers in **all 40 APAs**. Hispanic drivers also had higher average seriousness scores than White drivers **in all 40 APAs**. These cross-race and cross-ethnicity differences in the number of violations observed and the seriousness of violations recorded are taken into account in the multivariate analyses of citations presented below.

[11] This variable is coded "one" for serious offenses and coded "zero" for other offenses, then summed across eight violation fields (with resulting possible scores ranging from zero to eight). Serious violations included the following offenses: felony drugs; misdemeanor drugs; DUI drugs with test; DUI drugs, no test; DUI underage, with test; DUI underage, no test; DUI with test; DUI without test; felony flight, elude; felony warrant; hit and run; insurance (none in force); license suspension/revocation; misdemeanor warrant; negligent driving, 1st degree; negligent driving, 2nd degree; reckless driving; vehicular homicide; and vehicular assault.

Table 12—Average Seriousness of Violations by Race and APA
(November 1, 2002-June 30, 2004)

APA	White	Black	Native	Asian	Hispanic	East Indian
1	.17	.30	.39	.17	.33	.03
2	.20	.38	.72	.16	.38	.07
3	.29	.35	.79	.23	.43	.13
4	.22	.29	.48	.16	.32	.10
5	.18	.29	.72	.14	.31	.13
6	.21	.37	.47	.18	.39	.14
7	.13	.23	.48	.10	.29	.10
8	.14	.23	.28	.12	.27	.12
9	.15	.24	.31	.13	.30	.10
10	.19	.36	.36	.18	.28	.26
11	.13	.20	.40	.09	.26	.05
12	.09	.12	.31	.02	.20	.03
13	.14	.28	.45	.09	.27	.08
14	.17	.30	.43	.08	.30	.10
15	.10	.24	.30	.10	.19	.05
16	.08	.17	.20	.06	.17	.05
18	.14	.26	.28	.11	.19	.18
19	.19	.34	.37	.15	.25	.12
20	.09	.12	.19	.08	.15	.03
21	.24	.41	.80	.16	.40	.12
22	.11	.14	.39	.09	.17	.05
23	.26	.29	.47	.15	.42	.09
24	.17	.17	.34	.08	.28	.06
25	.16	.18	.59	.15	.27	.13
26	.13	.25	.45	.08	.26	.08
27	.09	.16	.35	.17	.26	.02
28	.10	.17	.14	.04	.25	.04
29	.12	.21	.52	.04	.25	.15
30	.22	.25	.71	.07	.48	.07
31	.21	.24	.53	.07	.46	.08
32	.16	.15	.40	.13	.28	.10
33	.16	.25	.58	.09	.31	.08
34	.12	.19	.26	.06	.23	.07
35	.14	.23	.32	.09	.22	.06
36	.19	.27	.37	.15	.23	.08
37	.09	.12	.25	.09	.14	.04
38	.23	.22	.55	.16	.32	.18
39	.12	.14	.34	.07	.28	.00
40	.14	.07	.27	.18	.31	.00
41	.17	.25	.41	.11	.31	.08
Statewide	.17	.29	.43	.13	.27	.09

As an additional measure of racial differences in driving behavior and compliance with traffic and safety laws, Table 13 presents statewide results on the percentage of drivers who were found to have DUI, seatbelt, license, and insurance violations, for both self-initiated WSP contacts and for contacts as the result of involvement in accidents. These comparisons show striking racial differences in compliance with traffic and safety laws. While 1.7% of White drivers (in contacts initiated by the WSP) received DUI violations, 3.2% of Black drivers, 3.3% of Hispanic drivers, and 5.5% of Native American drivers received DUI violations (only 1.7% of Asian drivers and 1.0% of East Indian drivers received DUI violations). In contacts with the WSP resulting from involvement in traffic accidents, 2.0% of East Indian drivers, 4.7% of White drivers, 9.5% of Black drivers, 12.5% of Hispanic drivers, and 31.9% of Native American drivers received DUI violations. Similarly, with regard to accident contacts, 17.1% of Black drivers, 21.2% of Hispanic drivers, and 31.1% of Native American drivers had license violations, and 19.7% of Black drivers, 25.4% of Native American drivers, and 28.8% of Hispanic drivers received insurance violations. While the disproportional compliance with license and insurance laws is likely closely related to socio-economic issues, which we cannot measure with the data available to us, these differences need to be acknowledged as they are likely to have an important impact on troopers' decisions to issue citations to drivers detained on the state's roads and highways.

Table 13—Violations of Traffic and Safety Legislation By Race
(Self-Initiated Contacts and Accident Contacts)

Self-Initiated Contacts

Violation	White	Black	Native	Asian	Hispanic	East Indian
DUI	1.7%	3.2%	5.5%	1.7%	3.3%	1.0%
Seatbelt	9.7%	8.6%	16.9%	5.9%	11.4%	5.4%
License	8.9%	15.1%	20.3%	7.0%	15.0%	5.7%
Insurance	9.7%	12.5%	14.9%	7.7%	17.2%	6.2%

Accident Contacts

Violation	White	Black	Native	Asian	Hispanic	East Indian
DUI	7.8%	9.5%	31.9%	4.7%	12.5%	2.0%
Seatbelt	0.9%	0.8%	5.2%	0.3%	1.2%	0.5%
License	9.1%	17.1%	31.1%	5.3%	21.2%	5.9%
Insurance	11.1%	19.7%	25.4%	9.5%	28.8%	8.3%

Consistent with the quantitative data on racial disproportions in compliance with traffic legislation, our focus group interviews with troopers and sergeants revealed that they were quite aware of these racial and ethnic group differences. Several officers commented that, particularly with respect to Native American drivers and Hispanic drivers, there was a greater likelihood of multiple violations (e.g., DUI, speeding, vehicle problems; lack of insurance coverage, no valid driver's license, etc.). As one trooper noted who has frequent contact with Native American drivers, "Every fifth person that we stop that is Native American will either be suspended, have a warrant, or be drunk… if we stop a white person, it would probably be every twentieth car we contact, at night-time, that would be suspended, have a warrant, or be drunk."

Another trooper commented as follows: "I remember when I first got here, a lot of the vehicles, especially in the Hispanic community, either they were not licensed or driving on a suspended license. I mean, a *majority* of them." Also consistent with our speculation in our August 2003 report, several troopers and sergeants noted that this tendency toward multiple, and frequently more serious, violations on the part of some minority group members was related to

socio-economic differences. With respect to Native American drivers, one trooper commented "I think there are a lot of variables that play into that: socio-economic status; there ... by and large, the Reservation is made up of impoverished people." With respect to Hispanic drivers, another trooper noted the following: "Personally, a lot of times I'll stop a migrant worker, they're up here in the 'land of opportunity'; they have a large family and they're driving a piece of crap car; they're just trying to make ends meet; and trying to survive and a lot of times, they don't have insurance."

It is important to note, however, that in situations in which the individuals contacted had multiple violations, troopers and sergeants reported that they seldom issued citations for all of the observed violations (or, as one trooper commented, gave motorists "the full meal deal/McDonald's Special") regardless of the race of the individual contacted. In the previously mentioned case involving an insurance violation, the trooper noted "Let's face it ... insurance is very expensive. I won't lay a $538 insurance ticket on them. I just write them for speed or whatever, and kick them loose." Similarly, one sergeant noted the following: "When you get multiple violations, like speeding and fail to signal and expired insurance and some other violations that might not be so serious, you don't necessarily cite them for all the violations. You'll say, 'OK, sir I'm going to give you a break today: I'm not going to cite you for this. You know, you need to go down and get your insurance renewed. I'm just going to cite you for speeding.'" Another trooper commented thusly: "Hey, you know you've got out-of-date tabs. I've noticed that you've got a taillight out and I'm only writing you today for the seatbelt. Just make sure you get the other two items taken care of."

Multivariate Analysis of Citations

As McMahon et al. (2002) have pointed out, bivariate statistics are often useful for descriptive purposes, but they are far too simplistic to disentangle the role of race or any other single factor in determining police behavior. McMahon et al. (2002) also note that most research on racial profiling and biased policing does not provide information on the locations, times, circumstances, or types of enforcement activities where the problem of biased policing, if it exists, appears most strongly or does not appear at all. The multivariate analyses presented below move us forward in our understanding of the complex interactions between race and a number of other variables that likely have an impact on traffic stop enforcement outcomes.

Our multivariate analyses focus on the dependent variable of whether an individual contacted by the WSP received a citation as a result of the traffic stop contact. Taking into consideration the points made above with respect to differences in the average number and seriousness of violations across racial groups, we conducted separate analyses for each of the 40 APAs, with the predictor/independent variables in the first model consisting of the individual's gender (males coded zero, females coded one); age (in years, a continuous variable); and race (dummy variables for Black, Native American, Asian, Hispanic, and East Indian, with Whites treated as the reference category). We also included measures of the number of current violations of the individual contacted and the combined seriousness of those violations; a variable indicating whether the stop occurred in daylight hours; and a variable indicating whether the stop occurred on an interstate highway or some other location. The second set of models included all the variables mentioned above, as well as interaction terms for race multiplied by the

number and combined seriousness of the violations in order to control for the possible effects on being issued a citation of differences in compliance with traffic laws across racial groups[12].

While our focus here is on the impact of race on receiving a citation, the full models indicated that females were significantly less likely to be issued a citation in 31 of 40 APAs; age had a statistically significant impact on receiving a citation in all 40 APAs (with younger drivers being more likely to be issued citations); the number of violations had a statistically significant impact on receiving a citation in 12 APAs (those with a greater number of violations were more likely to be issued citations); the combined seriousness score had a statistically significant effect on receiving a citation in all 40 APAs (drivers who had high seriousness scores were likely to be issued citations); daylight stops were more likely to result in citations in 39 APAs; and stops occurring on interstate highways were more likely to result in citations in 22 of 40 APAs.

Table 14 presents multivariate logistic regression models with citation as the dependent variable for four sample APAs (Seattle South, Sunnyside, Spokane Valley, and Everett East). The findings presented in Table 10 reveal that Black, Native-American and Hispanic drivers were more likely to be issued citations than Whites in Seattle South. However, the multivariate models indicate that when other variables are controlled for, these associations are no longer statistically significant. The findings displayed in Table 10 also indicated that Black, Native American, Asian, and Hispanic drivers were more likely to be issued citations in the Sunnyside APA. However, the results of the multivariate analyses presented in Table 14 indicate that Native Americans are significantly **less** likely to receive citations in Sunnyside after controlling for the additional contextual variables. Similarly, while the first logistic regression model for Sunnyside indicates that Hispanic drivers were significantly more likely to be issued citations,

[12] The interaction terms were constructed by adding the number of violations and the seriousness score, and dividing by the number of violations (to avoid "double-counting").

when the interaction term controlling for differences in the number and seriousness of violations for Hispanic drivers is included (in model 2); the Hispanic trait is no longer significant.

Table 14—Logistic Regressions from Selected APAs—Citation Dependent Variable

	Seattle S (6)		Sunnyside (12)		Spokane Valley (19)		Everett E (34)	
Variable	Odds	Odds	Odds	Odds	Odds	Odds	Odds	Odds
Female	.95	.95	.82*	.82*	.80*	.83*	.94	.94
Age	.98*	.98*	.99*	.99*	.98*	.99*	.99*	.99*
Black	1.02	.78	.89	.75	.93	.38*	.83	.27*
Native	1.07	.32	.68*	.27*	1.97*	.89	1.44	.73
Asian	1.10	.83	1.03	.82	.92	1.19	1.15	1.99
Hispanic	1.11	.63	1.23*	.84	1.09	.65	1.26*	.66
E. Indian	1.09	1.57	N.A.	N.A.	N.A.	N.A.	1.00	2.92
# Violations	.97*	.96*	1.07*	1.04	.95*	.95*	.98	.98
Seriousness	6.90*	6.47*	5.58*	4.95*	7.02*	6.91*	5.55*	5.38*
Daylight stop	2.21*	2.21*	1.95*	1.95*	2.37*	2.37*	3.55*	3.55*
Interstate	1.27*	1.27*	1.10*	1.09*	1.48*	1.48*	.64*	.64*
Black*off		1.48		1.34		3.83*		6.23
Native*off		5.44		3.81*		3.68		3.04
Asian*off		1.54		1.47		.66		.38
Hispanic*off		2.29*		1.85*		2.24		2.79
E. Indian*off		.55		N.A.		N.A.		.16
N of cases	34,005		11,584		74,092		36,960	
Chi-square	6,702	6,705	2,119	2,162	12,075	12,109	5,188	5,212
Nagelkerke r2	.243	.244	.231	.233	.204	.204	.176	.177

* $p < .001$

Multivariate analyses of the citation decision were conducted in an identical manner for each APA; Table 15 presents summary odds ratios for the effects of race on citation (these models included interaction terms and all other independent/control variables). This table reveals that Blacks were not significantly more likely to be cited in a single APA, and were significantly **less** likely to receive citations in eight APAs (Tacoma Freeway, East Pierce County, Seattle North, Seattle East, Spokane Valley, Vancouver, Everett East, and APA 41). Native-Americans were not significantly more likely to be issued a citation in a single APA, and were significantly **less** likely to receive a citation in Yakima. Hispanics were not significantly more likely to be issued a citation in any APA, and were significantly **less** likely to be issued citations

in the Sunnyside, Kennewick, Wenatchee, Ephrata, Moses Lake, Mount Vernon, Everett Central, Shelton and Raymond APAs. While the results for East Indians should be treated with caution due to the large number of APAs in which there were an insufficient number of contacts with members of this group to allow for reliable statistical analyses, there were no APAs in which East Indians were more likely to be issued citations. However, Asians were significantly more likely to be issued citations in eight APAs (Thurston County, Kelso, Ellensburg, Bellingham, Mount Vernon, Everett Central, Forks/Port Angeles, and APA 41).

Table 15—Odds Ratios—Citation Dependent Variable (Interaction Terms Included)
(November 1, 2002-June 30, 2004) [* p < .001]

APA	Black	Native	Asian	Hipsanic	East Indian
1	.55	1.75	.73	1.06	N.A.
2	**.45***	.45	.93	.73	1.89
3	**.57***	.36	1.13	.85	.24
4	.55	.84	**2.49***	1.09	1.67
5	**.38***	.28	.96	.57	.97
6	.78	.32	.83	.63	1.57
7	**.56***	N.A.	1.13	.69	.86
8	.66	1.58	1.43	.84	2.67
9	.63	.97	1.10	1.09	1.05
10	.10	.31	.65	.21	1.36
11	.75	**.27***	.82	.84	N.A.
12	.99	.46	.38	**.49***	.59
13	.70	N.A.	.97	**.59***	3.94
14	1.53	1.35	.42	.68	N.A.
15	2.07	1.34	3.04	1.55	N.A.
16	.32	.56	1.57	.45	4.79
18	.49	.67	3.20	.22	N.A.
19	**.38***	.89	1.19	.65	5.32
20	.42	.30	1.47	.77	N.A.
21	**.39***	N.A.	.66	.80	.68
22	2.37	.33	1.42	.67	N.A.
23	2.58	N.A.	**3.45***	.73	1.11
24	1.51	.72	2.70	.65	2.71
25	1.30	1.33	1.92	**.52***	2.47
26	.60	1.16	**2.64***	.93	2.85
27	.93	.47	1.92	.98	N.A.
28	.64	.62	2.41	**.29***	N.A.
29	.53	2.38	2.44	**.57***	N.A.
30	.56	1.28	**3.88***	.61	2.29
31	.89	.31	**6.51***	**.39***	5.71
32	.74	1.62	.72	.57	N.A.
33	.60	.48	**1.84***	**.49***	1.66
34	**.27***	.73	1.99	.66	2.92
35	1.44	.71	**3.35***	.86	1.74
36	.65	.94	1.18	.74	1.78
37	.34	1.33	1.25	.43	N.A.
38	.66	1.10	2.02	**.29***	N.A.
39	.94	N.A.	2.07	**.32***	N.A.
40	2.14	1.70	1.20	.54	N.A.
41	**.28***	.35	**2.36***	.51	1.26

These remaining effects for Asian drivers require some explanation. In our August 2003 report, we speculated that the higher rate of citation for Asian drivers in some APAs could be due to their possible disproportional involvement in speeding offenses. One of the "core four" missions of the WSP is to reduce speeding, and statewide 47.6% of those who were contacted as a result of "speeding/radar" were issued citations (compared to 32.5% of those contacted for all other reasons). We thus examined data on the proportion of Asian drivers who were contacted as a result of "speeding/radar" for the eight APAs in which Asian drivers were significantly more likely to be issued citations than White drivers. The results of this analysis are reported in Table 16, and they indicate that a higher proportion of Asian drivers are contacted as a result of speeding/radar than are White drivers (and all other racial groups) in these eight APAs (with the sole exception of East Indians).

Table 16—Percent Contacted for "Speeding/Radar" by Race for Selected APAs

APA	White	Black	Native	Asian	Hispanic	East Indian
Thurston Co.	34.4	34.2	23.5	41.3	33.2	57.3
Kelso	40.2	52.9	38.9	56.5	39.1	59.0
Ellensburg	62.3	56.9	57.4	63.2	56.7	71.8
Bellingham	41.1	41.5	28.3	56.8	33.9	58.4
Mount Vernon	41.2	47.4	28.0	55.7	24.2	56.6
Everett Central	42.5	34.9	25.6	44.2	29.5	44.0
Forks/Port Ang	41.8	42.2	39.1	42.1	39.0	54.4
APA 41	41.2	34.2	26.3	47.3	33.1	45.4

Given the higher probability of citation for speeding/radar offenses, and given that a disproportional number of Asian drivers were contacted as a result of these offenses, we conducted an additional set of logistic regression analyses (the full models are not presented here) using the same variables as in the other models, but in this case adding one more dummy variable for speeding/radar violations. The inclusion of this variable substantially reduced the odds of Asian drivers being cited in all eight APAs (odds ratio 2.22 in Kelso; 1.81 in Ellensburg,

1.83 in Bellingham; 2.95 in Mount Vernon; 1.41 in Everett Central; 1.94 in Forks, Port Angeles; 1.54 in APA 41), but only in Thurston County was the odds ratio (1.32) for Asians reduced to non-significance. It is worth noting, however, that six of these APAs (Bellingham, Mount Vernon, Everett Central and Thurston County, and Kelso) are on the *Interstate 5 Corridor* (and in a sixth, Forks, Port Angeles houses a terminal which receives ferries from Victoria, British Columbia), which is characterized by a high percentage of Asian drivers arriving from the Canadian province of British Columbia. In our focus group discussions with WSP troopers and in interviews with sergeants, some WSP personnel noted that out-of-state drivers were more likely to be cited for traffic law violations than were in-state drivers[13]. Although not referring specifically to Asian drivers, one WSP sergeant assigned in a northwestern APA made the following telling remark: "We had tons of Canadians coming down and speeding. They don't seem to know what a speed limit [is]." He further commented in this regard, "I would say because if the officer didn't know the Canadian, didn't have any stake in the Canadian community, if all things were equal, he'd probably tend to write a ticket to the Canadian that he might not to a local citizen."

Troopers and sergeants taking part in the focus groups also offered useful suggestions with respect to explaining the higher rate of citation documented for Asian drivers. Some officers volunteered the comment that Asian drivers were not as "accomplished" in their driving skills as others and they were disproportionately responsible for accidents. As one WSP sergeant noted, "I'd take ten white drivers, ten black drivers, ten Asian, ten Hispanic drivers ... I would say the highest percentage of lower driving skills lies within the Asian." A WSP trooper

[13] This is consistent with Black's (1980) discussion of traffic law enforcement, in which he noted that "the cars of strangers are probably more vulnerable [to citation] than those of local residents" (p.32).

similarly commented as follows: "There's a large population of Asians in our district. ... Unfortunately, they're not always the best drivers ... they cause a huge amount of the accidents." This perception is at least partially confirmed through cross-group comparisons of the two data displays set forth in Tables 1 and 8. While Asians were 3.5 percent of those stopped as a result of self-initiated contacts by the WSP, they were 5.4 percent of those contacted as a result of **involvement in accidents**. This is the largest disparity between self-initiated and accident contacts for any of the five racial minority groups.

But perhaps more important in the context of Asian drivers being more likely to be issued citations, it was noted by some WSP troopers and their sergeants that Asian drivers had a tendency to be considerably more argumentative in their interaction with troopers (this was viewed as a distinct "cultural" difference). One WSP trooper commented as follows: "One thing I do find is that Asians start arguing pretty quickly. They weren't 'doing anything wrong'. ... And I think that's part of the culture because I know they do a lot of bartering and I think that's what it comes to. I try and educate them and tell them they don't want to argue like that when they get stopped next time because it's a real quick way to get a ticket. Especially because they do start right away before you say your first words to them." Another WSP trooper observed in this regard, "Uh, you take [Asians]. A lot of times ... it's confrontational. They will argue until they're blue in the face with the police because that's how they were brought up within their culture."

On the other hand, perhaps due to language difficulties or unfamiliarity with American customs of the roadway, some Asian drivers were less likely to understand the nature of their violation. As one WSP sergeant noted, "I think part of it, also, has to do with it seems to me like most of the time there's a language issue, a language barrier where they can't really

communicate what they did wrong or why that's wrong or what it was, so then you run into the education issue again where the only thing I can do here is either nothing or write a ticket." As a result of WSP troopers' primary goal of traffic safety "education," it would seem logical that in such situations Asian drivers would be more likely to be issued citations.

Considering the various analyses of citation rates overall, while there should be some concerns regarding the higher rate of citation for Asian drivers in certain APAs, it is important to reiterate that when racial differences in compliance with traffic and safety legislation are statistically controlled for, *there is not a single autonomous patrol area in which Blacks, Native Americans, Hispanics, or East Indians are significantly more likely to be issued citations*[14]. Similar to our findings of no evidence of systemic bias at the level of who is contacted by the Washington State Patrol, the lack of evidence of systemic racial bias in citations needs to be considered in the light of other studies of racial profiling/biased policing in the United States, the majority of which suggest that minorities are more likely to be cited.

It is also notable that while there were certainly exceptions, the majority of citizens who participated in our focus groups expressed the belief that the WSP, compared to other law enforcement agencies with which they were familiar, were more professional in their dealings with the public. One citizen commented as follows: "A lot of the troopers have come and talked to the community ... they have educated themselves and the community." Another noted in this

[14] One issue that emerged somewhat unexpectedly in the trooper/sergeant focus groups was that, partially in response to heightened media attention to the issue of racial profiling by law enforcement and concerns that citizens would issue complaints, some troopers were opting to warn, as opposed to cite, members of minority groups whom they contacted. While this phenomenon does not necessarily constitute "de-policing" in the sense that it has been discussed in some of the recent literature on racial profiling, it could be at least partially responsible for the fact that we find rates of citation for minority group members that are lower than those of Whites in several APAs. While this should be of some concern, we have no reason to believe that it necessarily results in compromising one of the primary goals of the WSP—namely, that of the education of the driving public as to the safe operation of motor vehicles.

regard, “I really think the Highway Patrol, for the most part, was professional in what they do ... and compared to some of the other agencies, I really do think they’re better.” Similarly “I believe the experiences I have had with Washington State Patrol have been, on the whole a lot better than any of the other agencies I’ve dealt with.”

III. SEARCH DATA

In this section of the report, we turn to the issue of search and seizure. We summarize the evolution of the data and describe some of the anomalies and other apparent problems with the WSP traffic stop data regarding searches. This section thus reviews the last time the search codes were changed and the subsequent improvement in the data; it also includes a brief review of the data problems that still existed at the time of our 2003 report (which used primarily data from 2002 traffic stops), as well as our analysis and findings in that report. This section of the report also replicates much of our analysis from the 2003 report, using more recent data with the primary goal of determining whether the patterns of searches identified in the 2003 report have changed. We also include some new analyses of the quantitative data on searches, and draw from the interviews and focus groups we conducted with WSP troopers and sergeants in trying to understand when and why searches occur. Finally, we discuss issues that we have identified but have still been unable to address regarding search and seizure by the WSP, and suggest some areas for future research.

New Data Analysis: WSP Traffic Stop Data July 2003-June2004 (1,102,529 observations)

We begin our analysis of searches by examining updated traffic stop data, including stops through June 2004. For the analysis of searches in this section, we analyze data for one full year of Washington State Patrol traffic stops, from July 1, 2003, through June 30, 2004. First, we examine whether the accuracy of quantitative traffic stop data with respect to the search and contraband variables has improved over our 2003 report, where we noted numerous data anomalies that

indicated relatively large numbers of searches were not being coded properly. Next, we provide some new data analysis—new in the sense that we largely replicate the search analysis done in the 2003 report using the new data from July 2003 to June 2004. Throughout this analysis, we also discuss how the interviews and focus groups conducted with troopers during the summer of 2004 have contributed to our understanding of the traffic stop quantitative data.

Assessing the "New" Data: Has the Coding of Searches Improved?

First, we examine whether searches are being coded more consistently and accurately than in the past. As a proxy for accuracy of the search coding, we have been tracking the proportion of DUI violations that result in searches. We noted in our August 2003 report that a relatively large proportion (close to 30 percent across the agency) of DUIs were recorded by troopers as "No Search" or the search field was left blank, despite the fact that all DUI violations should result in a search per WSP policy. Based on the WSP data from July 2003 through June 2004 (1,102,529 observations), there appears to have been a slight improvement over past data in the proportion of DUIs correctly being coded as searches; however, we have identified that a fairly large proportion of DUIs are still not being coded as searches.

For example, of the 5,557 "DUI with test" stops (violation code=1) in the v1 field, 1,935 (34.7%) were coded as "no search," and 3,255 (58.4%) were coded correctly as "search incident to arrest." Similarly, of the 7,254 "DUI with test" stops (violation code=1) in the v2 field, 2,074 (28.6%) were coded as "no search," and only 4,810 (66.2%) were coded correctly as search incident to arrest. The percentages that are correctly coded as searches for "DUI without test" (violation code=2) are even lower. We note, however, that there has been substantial improvement in reducing the number of observations in which the search field is left blank for DUI with test. Only

23 (0.4%) observations of 5,557 "DUI with test" stops (violation code=1) in the v1 field, and 25 (0.3%) of 7,254 such observations in the v2 field, left the search field blank.

While the problems surrounding proper search codes for DUIs still exist and are thus cause for concern, this is an area where the trooper/sergeant focus groups were particularly informative. First, there is still a fair amount of uncertainty among WSP troopers—and even some sergeants—regarding how to code searches, an uncertainty that mirrors the uncertainty with respect to what violation to code in the v1 field. There are some WSP troopers who appear to be confused about coding searches generally, and did not seem to have a complete grasp of the different types of searches included on the TARS form (and which correspond to legal categories carved out by U.S. Supreme Court decisions and other judicial precedents).

More specific to the issue of the large proportion of DUIs that are not coded as searches, it is apparent from our interviews and focus group discussions that many troopers do not code searches for DUIs. We were told several things that might explain the problem. First, some troopers do not know how they are supposed to code DUI searches. Some accurately noted that DUIs should be coded as search incident to arrest—others, however, believed that "inventory search" was the appropriate category. It is also apparent that WSP troopers have different practices during a DUI arrest, with some conducting a full search of the driver and the vehicle, and others doing a more cursory inventory-like once-over of the cabin of the vehicle in order to ensure that violators do not claim that items were stolen from their vehicles. We also learned that in some cases, searches were not conducted after DUI contacts due to the fact that a passenger in the vehicle was allowed to drive the car home. Further, troopers told us that it is increasingly common for the WSP to be called to a DUI traffic stop by another law enforcement agency, such as the city police or a sheriff's deputy. Because they were called to the scene to take custody of the driver after the DUI arrest has occurred,

they may be less likely to code the stop as a search on the TARS. One sergeant also noted that, given the relative rarity of searches, many troopers get in the habit of filling out the search field with a "No Search" code so that even when they have a DUI contact they fill the TARS form out in a very rote manner, forgetting to record the search activity. This is especially so in the great majority of cases where no contraband was discovered as a result of the search associated with the traffic stop.

Another data problem we had identified in our 2003 report and other analyses of search data involved problems in how troopers coded for whether contraband was seized as a result of a search. In earlier datasets, fairly high percentages of observations coded as a search did not also have a code entered for Contraband/No Contraband. In these most recent data, July 2003 – June 2004, only a veritable handful of searches (a statistically negligible number) did not include a code for Contraband/No Contraband. Thus, this part of the search data appears to have improved significantly in completeness.

Our interviews with troopers and sergeants also revealed some potential considerations regarding the contraband codes. Similar to other issues, the trooper/sergeant focus groups have been useful in helping us to understand the problems encountered in the field in the coding of contraband. It is clear from our interviews that not all troopers know that they should record a value for "no contraband" when they fail to discover it. If troopers have been trained to do so, they have either forgotten that they need to enter this code or they have turned the coding process into a rote exercise that does not include stopping to think about how to code for contraband. There is some additional confusion about contraband codes—in the focus groups troopers commented that they usually identified illegal drugs and weapons as something they should code as contraband, but did not know what other types of contraband should be coded.

Data Analysis: What do the Numbers Tell Us?

Although the apparent under-reporting of searches suggests some reason for concern and caution, we have not found evidence that the under-reporting is a result of systematic bias; we have adequate confidence in these data to proceed with a systematic analysis with respect of racial and ethnic equity issues. Our analysis of the WSP traffic stop search data in this section focuses on the issue of whether or not there is evidence of racial bias in the instances of search and seizure initiated by officers of the WSP. We begin this section by examining the frequencies of searches and the proportions of minority motorists subjected to searches. We then examine "hit rates" associated with searches. Finally, we report the results of a series of multivariate analyses with search featured as the dependent variable.

For our analysis of searches, we follow our previous practice of creating three general categories of searches: *No Search*, *Low Discretion Search* (Search incident to Arrest, Warrant Search, Impound/Inventory Search, and *High Discretionary Search* (Pat Down/Terry Search, Consent Search, K-9 Search). Table S-1 reports the frequencies of searches, both for all observations and for self-initiated contacts only. For all observations, only 3.5 % of WSP traffic stops result in searches (2.7% low discretion searches, and 0.5% high discretion searches). For self initiated stops, only 3.2% of stops result in searches (2.7% low discretion searches, and 0.5% high discretion searches). As was the case in the 2003 report, it does not appear that the search practices of WSP officers differ substantially in self-initiated contacts as opposed to dispatched contacts. We note that the percentage of stops that result in high discretion searches is the same for all observations and for self-initiated contacts only.

Table S-1. Frequencies of Search Code Types

	Frequency	Percent	Cumulative Percent
All observations (N=1,103,121)			
Low Discretion Search	32,552	3.0	3.0
High Discretion Search	4,965	0.5	3.5
No Search	1,065,604	96.6	100.1
Total	1,103,121	100.1*	100.1*
Self-Initiated Contacts (N=851,611)			
Low Discretion Search	23,016	2.7	2.7
High Discretion Search	4,014	0.5	3.2
No Search	824,581	96.8	100.0
Total	851,611	100.0	100.0

*percentages do not add up to 100 due to rounding errors.

Next, we examine the proportion of searches conducted by race. Table S-2 presents the cross tabulations for the different search categories by race and ethnicity. As Table S-2 indicates, Blacks, Native Americans and Hispanics continue to be disproportionately subjected to searches at higher rates compared to whites, while Asians and East Indians are subjected to searches at slightly lower rates than whites. The disparities among racial groups are the largest for low discretion searches: Whites 2.6%, Blacks, 5.6%, Hispanics 5.6%, Native Americans 11.8%, Asian/Pacific Islanders 2.3% and East Indians 1.0%. There are still statistical disparities in the rates of high discretion searches, but the disparities are smaller than for low discretion searches: Whites 0.4%, Blacks 1.0%, Hispanics 0.9%, Native Americans 1.6%, Asian/Pacific Islanders 0.4% and East Indians 0.2%.

Table S-2. Search by Race, July 2003-June 2004 (all observations)*

	No Search	Low Discretion Search	High Discretion Search	Total
White	900,188 (97.0%)	24,187 (2.6%)	3,618 (0.4%)	927,993 (100%)
Black	37,403 (93.4%)	2,248 (5.6%)	382 (1.0%)	40,033 (100%)
Native Am.	5,355 (86.7%)	729 (11.8%)	96 (1.6%)	6,180 (100%)
Asian/Pac	35,944 (97.3%)	860 (2.3%)	153 (0.4%)	36,957 (100%)
Hispanic	70,571 (93.5%)	4,226 (5.6%)	670 (0.9%)	75,467 (100%)
East Indian	11,541 (98.9%)	113 (1.0%)	20 (0.2%)	11,674 (100%)
Other	4,099 (97.0%)	108 (2.6%)	18 (0.4%)	4,225 (100%)
Total	1,065,101 (96.6%)	32,471 (2.9%)	4,957 (0.4%)	1,102,529 (100%)**

* The total number of observations is less that the total reported in Table 1 due to a relatively small number of missing variables.
** percentages do not actually add up to 100 percent due to rounding errors.

As we have previously discussed in the 2003 report, it is inappropriate to rely solely on these bivariate statistics in drawing conclusions about the relationship between race and incidents of searches. Our approach has become increasingly validated as further research efforts and scholarly attention has been given to the issues surrounding racial disparities of those searched. There are two general approaches taken to understand the relationship between race and searches beyond the type of bivariate analysis represented in Table S-2 above. The first approach is based on a theory of "efficient policing" (Knowles et al. 2001; see also, Borooah 2001; Persico 2002). Briefly, this approach argues that the primary goal of searches is to find and seize contraband. Therefore, a law enforcement agency's search practices should be judged by how well it achieves this goal. A second (and under-utilized) approach, to which the WSU team has already made a substantial contribution, is to conduct multivariate analysis on the likelihood of searches. This approach takes

into account that race is only one factor among many that may be related to the likelihood that a police officer will conduct a search in the course of a traffic stop.

We turn first to the efficient policing approach. Although there are different measures of efficient policing, the predominant and most straightforward method has been to calculate so-called "hit rates." Essentially, the hit rate is calculated as a proportion of searches that result in the discovery of contraband. Although there are some problems with this approach, it can shed considerable light on the propriety of searches conducted by a law enforcement agency. By comparing the hit rates of different racial groups, we can judge how efficient police are and assess whether or not particular racial groups are searched in appropriate numbers. This approach assumes that the underlying offending rates for carrying contraband will not vary by racial group. According to scholars who advocate this approach, if hit rates among minorities and whites are relatively equivalent to one another, searches are not the result of racial discrimination but rather represent efficient policing. On the other hand, if hit rates are lower for racial minorities than for whites, the evidence supports a claim of intentional racial discrimination; and, conversely, when hit rates for racial minorities are higher among racial minorities than whites, the evidence supports a claim of reverse discrimination.

Using the July 2003 – June 2004 WSP traffic stop data, we calculated hit rates by racial group for both low discretion and high discretion searches. The results of these tabulations are reported in Table S-3. The hit rates for low discretion searches for Whites (.27), Blacks (.23) and Native Americans (.27) suggest fairly stable and efficient policing practices as to those groups, but the lower hit rates for Asians, Hispanics and East Indians suggest that those groups are subjected to low discretionary searches more frequently than necessary to achieve this measure of efficient policing. Hit rates are even more variable for high discretion searches with Whites (.22) and Asians

(.18) experiencing the highest hit rates, Native Americans (.15) and Hispanics (.15) in the middle range of hit rates, and Blacks (.09) and East Indians (.05) the lowest hit rates.

Table S-3. Hit rates

	Low Discretion Searches			High Discretion Searches		
	No Contraband	**Contraband**	**Hit Rate**	**No Contraband**	**Contraband**	**Hit Rate**
White	17,755	6,432	.27	2,810	808	.22
Black	1,720	528	.23	346	36	.09
Nat. Am.	535	194	.27	82	14	.15
Asian/Pac	735	125	.15	126	27	.18
Hispanic	3427	799	.19	570	100	.15
E. Indian	100	13	.12	19	1	.05
Other	92	16	.15	17	1	.06
Total	24,364	8,107	.25	3,970	987	.20

Next, we turn to the multivariate analysis of searches. As we did in the 2003 report, we use a multinomial logit model to estimate the relative effects of race and other factors on the likelihood of low discretion and high discretion searches. Our dependent variable consists of three nominal categories: No Search (the baseline category), Low Discretion Search, and High Discretion Search. The independent variables fall into four categories: driver characteristics, nature of the contact, officer characteristics, and geographical boundaries based on Autonomous Patrol Areas ("APA"). Driver characteristics include dummy variables for the sex and race of the driver (male and white are the baseline categories), and the age of the driver. The nature of the contact includes the number of violations recorded for the stop and dummy variables for a serious violation, stops that take place on interstate highways, and stops that take place during the daylight. The operationalization of these variables is described in more detail above (see especially the analysis of citations). Finally,

we included a serious of dummy variables for each APA (APA 18, North Spokane, is the baseline category). The results are reported in Table S-4.

The race variables for Black, Native American and Hispanic all have a positive impact (relative to White) on the likelihood of both low discretion and high discretion searches, while the variables for Asian/Pacific Islander and East Indian have a negative influence (relative to White) on the likelihood of a search. Most of the other variables in the model, however, also affect the likelihood of a search, and the magnitudes of the coefficients suggest that several variables are as important, and perhaps more important, for explaining the probability of searches than race or ethnicity. Females are less likely to be searched than males, and younger drivers are more likely to be searched than older drivers. The likelihood of both categories of searches is also increased when an officer observes more violations. Perhaps the most important predictor of searches, in terms of the magnitude of the coefficients, is the seriousness of violation variable. Searches are less likely to be conducted during the day. According to the results of the model, low discretion searches are less likely to take place on interstate highways than other types of highways and roads, while high discretion searches are more likely to occur on interstates. Consistent with our previous analyses of WSP search data, we note that the effect of race on the likelihood of search does not appear to vary much from low discretion to high discretion searches, indicating that WSP officers do not act differently with regard to the race of the driver when exercising higher levels of discretion than when exercising lower levels of discretion. We also find that there is substantial variation in the likelihood of both types of searches from one APA to another APA.

Table S-4 Multinomial Logit Results

	Low Discretion Search		*High Discretion Search*	
Variable	***Coefficient (S.E.)***	***Sig. level***	***Coefficient (S.E.)***	***Sig. level***
Driver Characteristics:				
Female	-0.369 (.016)	.00	-0.833 (.040)	.00
Age	-0.014 (.001)	.00	-0.035 (.001)	.00
Black	0.432 (.027)	.00	0.572 (.056)	.00
Hispanic	0.396 (.021)	.00	0.662 (.045)	.00
Native American	1.230 (.051)	.00	1.411 (.108)	.00
Asian/ Pacific Islander	-0.296 (.040)	.00	-0.129 (.084)	.12
East Indian	-0.830 (.103)	.00	-0.705 (.226)	.00
Other Race	-0.029 (.110)	.80	0.079 (.239)	.74
Nature of Contact:				
Number of Violations	0.816(.004)	.00	0.426 (.011)	.00
Serious Violation(s)	3.427 (.019)	.00	2.391 (.044)	.00
Interstate	-3.250 (.016)	.00	2.670 (.036)	
Daylight	-1.150 (.014)	.00	-0.518 (.029)	.00
Officer Characteristics:				
Female Officer	-0.088 (.027)	.01	-0.397 (.070)	.49
White Officer	0.375 (.024)	.00	0.463 (.056)	.00
APA:				
1-Gig Harbor	1.846 (.215)	.00	2.623 (.227)	.00
2 -Tacoma Freeway	2.393 (.049)	.00	1.582 (.090)	.00
3 -East Pierce Cty.	2.46 (.046)	.00	1.414 (.101)	.00
4 -Thurston Cty.	2.546 .046)	.00	1.058 (.104)	.10
5 -Seattle North	2.733 (.050)	.00	1.489 (.102)	.00
6 -Seattle South	2.979 (.046)	.00	1.518 (.095)	.00
7 -Seattle East	1.378 (.064)	.00	0.540 (.119)	.00
8 -Valley (King Cty)	2.130 (.058)	.00	-0.232 (.223)	.30
9 -North Bend	2.556 (.057)	.00	1.737 (.103)	.00
10 -Enumclaw	0.464 (.165)	.01	0.685 (.240)	.00
11 -Yakima	2.723 (.050)	.00	1.363 (.101)	.00
12 -Sunnyside	2.482 (.068)	.00	-1.903 (.582)	.00
13 -Kennewick	1.808 .054)	.00	0.067 (.149)	.66
14 -Walla Walla	1.534 (.084)	.00	1.091 (.150)	.00
15 -Colville	1.360 (.105)	.00	-1.401 (.581)	.02
16 -Ritzville	2.673 (.076)	.00	1.737 (.124)	.00
19 -Spokane Valley	2.510 (.042)	.00	1.947 (.076)	.00
20 -Colfax	1.621 (.103)	.00	0.301 (.259)	.24
21 -Vancouver	3.123 (.044)	.00	1.621 (.095)	.00
22 -Goldendale	2.055 (.092)	.00	1.703 (.151)	.00
23 -Kelso	2.890 (.049)	.00	1.667(.102)	.00
24 -Chehalis	2.773 (.056)	.00	1.475 (.118)	.00
25 -Wenatchee	1.105 (.069)	.00	-0.482 (.207)	.02
26 -Ellensburg	2.701 (.052)	.00	1.876 (.089)	.00
27 -Okanogan Cty.	2.062 (.086)	.00	1.440 (.159)	.00

28 -Ephrata	2.531 (.061)	.00	0.361 (.200)	.07
29 -Moses Lake	2.383 (.061)	.00	1.226 (.129)	.00
30 -Bellingham	2.976 (.046)	.00	1.011 (.117)	.00
31 -Mount Vernon	2.828 (.050)	.00	1.356 (.112)	.00
32 -Oak Harbor	2.197 (.068)	.00	0.367 (.215)	.09
33 -Everett Central	2.834 (.042)	.00	1.403 (.083)	.00
34 -Everett East	2.075 (.058)	.00	0.418 (.163)	.01
35 -Forks, Port Angeles	1.567 (.064)	.00	0.706 (.139)	.00
36 -Bremerton	2.179 (.044)	.00	2.156 (.076)	.00
37 -Hoquiam	1.867 (.075)	.00	0.029 (.245)	.91
38 -Shelton	1.834 (.074)	.00	1.791 (.126)	.00
39 -Raymond	2.079(.083)	.00	-1.328 (.581)	.01
40 -Morton	1.886 (.109)	.00	-1.359 (.710)	.06
41 –Silver Lake	2.124 (.091)	.00	0.560 (.240)	.02
Constant	-6.964 (.051)	.00	-6.450 (.101)	.00

Because the real meaning of the coefficients for the multinomial logit is difficult to interpret, we also calculated predicted probabilities for searches based on the results from the model in table S-4. We held certain variables constant, calculating these predicted probabilities for stops involving a male driver, white male police officer, in the daytime, on a road other than an interstate, with one violation. We then calculated the predicted probabilities for five different racial groups, serious and non-serious violations, and 18- and 50-year old drivers. The results are reported in Tables S-5 through S-10.

The predicted probability tables demonstrate that the probability of a search clearly varies based upon the type of search conducted, the seriousness of the violation, the age of the motorist, and the race of driver detained in a traffic stop. We note, however, that the disparities in the predicted probabilities among different racial groups are most acute for low discretion searches involving *serious violations* and *younger drivers*. In fact, in several APAs there is little to no variation among the predicted probabilities of high discretion searches of different racial groups. For example, in APAs 12 (Sunnyside, table S-7), and 15 (Colville, Table S-8), the probability of a high discretion search being conducted when there is no serious violation is negligible for all racial groups, regardless of the age of the driver. In APAs 18 (North Spokane, Table S-9) and 37

(Hoquiam, Table S-10), there is a little variation in the predicted probabilities for each racial group, with 18-year old Native Americans at the highest value (.08), but the predicted probabilities are all under .01 for 18-year olds and under .005 for 50-year olds. The predicted probabilities of high discretion searches are higher in APA 5 (Seattle North, Table S-5), and suggest that 18-year old Native Americans are more likely to be searched than other 18-years olds, especially Whites and Asians. The predicted probabilities of high discretion searches of 50-years olds does not vary as much by race for these two APAs.

Table S-5 Predicted Probabilities of Searches in APA 5 Seattle North

	No Search		Low Discretionary Search		High Discretionary Search	
Age:	18	50	18	50	18	50
Serious=0						
White	.956	.974	.036	.023	.009	.003
Black	.932	.960	.053	.035	.015	.005
Hispanic	.948	.971	.035	.023	.017	.006
Native American	.887	.934	.084	.056	.029	.010
Asian	.966	.980	.027	.017	.002	.003
Serious=1						
White	.446	.567	.510	.415	.044	.018
Black	.340	.458	.600	.516	.060	.026
Hispanic	.428	.557	.490	.408	.082	.035
Native American	.188	.275	.736	.688	.076	.037
Asian	.516	.636	.439	.346	.045	.018

*Predicted probabilities were calculated for stops involving a male driver, white male police officer, in the daytime, on a road other than an interstate, with one violation.

Table S-6 Predicted Probabilities of Searches in APA 11, Yakima*

	No Search		Low Discretionary Search		High Discretionary Search	
Age:	18	50	18	50	18	50
Serious=0						
White	.957	.975	.035	.023	.008	.003
Black	.934	.961	.053	.035	.013	.004
Hispanic	.950	.972	.035	.022	.015	.005
Native American	.863	.916	.109	.074	.028	.008
Asian	.967	.981	.026	.017	.007	.002
Serious=1						
White	.450	.760	.510	.223	.039	.006
Black	.345	.672	.602	.319	.053	.009
Hispanic	.434	.756	.492	.233	.074	.011
Native American	.191	.278	.741	.689	.068	.033
Asian	.521	.640	.439	.344	.040	.016

*Predicted probabilities were calculated for stops involving a male driver, white male police officer, in the daytime, on a road other than an interstate, with one violation.

Table S-7 Predicted Probabilities of Searches in APA 12, Sunnyside*

	No Search		Low Discretionary Search		High Discretionary Search	
Age:	18	50	18	50	18	50
Serious=0						
White	.971	.982	.028	.018	.000	.000
Black	.957	.972	.043	.028	.001	.000
Hispanic	.958	.973	.041	.027	.001	.000
Native American	.909	.940	.090	.059	.001	.000
Asian	.979	.986	.021	.014	.000	.000
Serious=1						
White	.528	.637	.470	.362	.002	.001
Black	.421	.532	.577	.467	.002	.001
Hispanic	.429	.541	.568	.458	.003	.001
Native American	.246	.339	.750	.660	.003	.002
Asian	.601	.702	.398	.297	.002	.001

*Predicted probabilities were calculated for stops involving a male driver, white male police officer, in the daytime, on a road other than an interstate, with one violation.

Table S-8 Predicted Probabilities of Searches in APA 15 Colville*

	No Search		Low Discretionary Search		High Discretionary Search	
Age:	18	50	18	50	18	50
Serious=0						
White	.990	.994	.009	.006	.001	.000
Black	.985	.991	.014	.009	.001	.000
Hispanic	.986	.991	.014	.009	.001	.000
Native American	.967	.979	.031	.020	.002	.001
Asian	.993	.995	.007	.004	.000	.000
Serious=1						
White	.772	.842	.223	.156	.004	.002
Black	.687	.776	.301	.221	.007	.002
Hispanic	.769	.841	.223	.156	.008	.003
Native American	.496	.609	.492	.386	.011	.004
Asian	.819	.878	.177	.121	.004	.001

*Predicted probabilities were calculated for stops involving a male driver, white male police officer, in the daytime, on a road other than an interstate, with one violation.

Table S-9 Predicted Probabilities of Searches in APA 18, North Spokane*

	No Search		Low Discretionary Search		High Discretionary Search	
Age:	18	50	18	50	18	50
Serious=0						
White	.996	.998	.002	.002	.002	.001
Black	.993	.996	.004	.002	.004	.001
Hispanic	.992	.997	.004	.002	.004	.004
Native American	.984	.992	.008	.005	.008	.003
Asian	.996	.998	.002	.001	.002	.001
Serious=1						
White	.912	.948	.068	.045	.020	.007
Black	.867	.921	.100	.067	.034	.012
Hispanic	.895	.942	.067	.045	.039	.013
Native American	.743	.839	.190	.136	.068	.025
Asian	.930	.960	.051	.034	.018	.006

*Predicted probabilities were calculated for stops involving a male driver, white male police officer, in the daytime, on a road other than an interstate, with one violation.

Table 10. Predicted Probabilities of Searches in APA 37, Hoquiam*

	No Search		Low Discretionary Search		High Discretionary Search	
Age:	18	50	18	50	18	50
Serious=0						
White	.983	.989	.015	.010	.002	.001
Black	.973	.984	.023	.015	.004	.001
Hispanic	.981	.984	.015	.015	.004	.001
Native American	.941	.964	.050	.033	.008	.003
Asian	.987	.992	.011	.007	.002	.001
Serious=1						
White	.665	.760	.320	.223	.015	.006
Black	.561	.672	.416	.319	.023	.009
Hispanic	.526	.756	.315	.233	.029	.011
Native American	.365	.480	.601	.505	.034	.015
Asian	.726	.809	.260	.185	.015	.005

*Predicted probabilities were calculated for stops involving a male driver, white male police officer, in the daytime, on a road other than an interstate, with one violation.

By contrast, across all APAs analyzed here (with the possible exception of APA 18, North Spokane, Table S-9), drivers who are pulled over for a serious violation are more much likely to be subjected to a low discretion search than a high discretion search, and much more likely to be searched than drivers who are stopped for a non-serious violation. In addition, there are greater disparities in the predicted probabilities of different racial groups who are subjected to low discretion searches when stopped for a serious violation. For example, the predicted probabilities that an 18-year old stopped for a serious violation in APA 12 (Sunnyside, Table S-7) will be

subjected to a low discretion search, in ascending order of magnitude, are .398 for Asians, .470 for Whites, .568 for Hispanics, .577 for Blacks and .75 for Native Americans; in APA 5 (Seattle North, table S-5), the predicted probabilities are, in ascending order of magnitude, .439 for Asians, .490 for Hispanics, .510 for Whites, .600 for Blacks and .736 for Native Americans.

Our trooper/sergeant focus groups shed some light on why Native Americans are searched at higher rates, at least for low discretion searches (especially for "search incident to arrest"). Several troopers told us that they believed the underlying offending rates for several offenses, especially DUIs and the use of marijuana while in the vehicle, were higher for Native Americans, especially when driving within close proximity of tribal reservations. Some troopers also indicated that Native Americans were more likely to have contraband in plain view in their vehicles. That is, they reported that they see more open containers and drug paraphernalia lying in open view in cars driven by Native Americans than in cars driven by members of other racial/ethnic groups.

Troopers and sergeants speculated that these impressions about Native American drivers are: (a) related to tribal sovereignty within reservation boundaries which immunizes Native American drivers from enforcement by state, county, or city law enforcement officials; (b) due to relatively low levels of enforcement of many offenses by tribal police, many Native American drivers become lax about these things when they happen to drive off the reservation.

Additional Lessons Learned from the Focus Groups Regarding Searches

In addition to learning new information about data recording and coding issues with respect to the TARS form, we also gleaned a considerable amount of useful information pertinent to our study of searches from the focus group sessions wherein WSP troopers were often able to play off of the observations of other officers. Not surprisingly, we learned that most searches are "about" either illegal drugs or about weapons. Consequently, the multitude of factors that cause a trooper to

conduct a search usually are, or should be, related to the likelihood of discovering illegal drugs or weapons upon stopping a car for a traffic violation.

One of the most important lines of questioning involved asking troopers how often they searched motorists, and asking what factors tended to affect their decision to do so. We asked WSP troopers to explain what types of behaviors on the part of motorists or other physical indicators during a stop might lead them to search or to call for a K-9 unit to assist in a search. Both WSP troopers and sergeants provided us with a fairly lengthy, albeit probably not entirely exhaustive, list of behaviors and other situational factors that create suspicion and may lead them to search a motorist and/or vehicle.

Some of those factors are very general; for example, jerky movements and movements that make it appear the driver is reaching down to hide things under the seats after pulling over to the side of the road, but before the trooper gets up to the vehicle. Several troopers commented that the smell of marijuana when the driver rolls the window down would also lead them to search the vehicle. Drug odors and "furtive movements" were the most common cues that lead to searches mentioned by the trooper we interviewed. Other factors leading to searches included situations in which the cabin space of a vehicle is empty except for many fast food wrappers, perhaps suggesting that the driver has been living in his car for days, but with no visible luggage. The following is a complete list of factors leading to search derived from the interviews:

- Smell/odor (of drugs and alcohol)
- Furtive movement (driver/passenger digging under seat, hiding things)
- Roach/paraphernalia in plain view
- Baggies, scale(s), rolling paper
- Everyone in car lights cigarettes as officer approaches car
- Windows down, freezing cold outside
- Brand new car, high mileage ("80,000 miles")

- Driver/passenger in car they don't own, just flew one way from L.A. and driving back in this car (and it is two years old with 80,000 miles on it, see Bellevue and Colville interviews)
- Fast food wrappers all over the floor, no luggage
- In questioning the driver, he/she can't tell you where he/she is coming from, or says he/she is going to Montana but is driving North or taking an inappropriate route
- Question driver and passenger separately – stories don't match up
- Vehicle reported to be used in crime (felony drug arrest month before)
- Speech patterns (slurs or pauses, either high or nervous)
- Air fresheners, incense in a car (esp. a lot of them)
- Pro-drug bumper stickers (420, marijuana leaf); grateful dead sticker
- Rental car
- Burglary tools
- Marijuana seeds on ground
- VCRs, TVs (items that might be stolen)
- Handgun in plain view
- Box of shells on dash, bullets in the ashtray, NRA sticker, sticker or t-shirt "I live for guns"
- Hockey bags (multiple) and coming down from BC, Canada
- Sheet of copper screen from hardware store
- Dash screws freshly painted
- Time of day (11 pm-4 am, people more likely to be up to no good)
- Location (known drug area)
- Police knowledge that the driver was involved in drugs in past
- Needle marks on arms
- Skinny guy with dark circles under eyes looks like he hasn't slept in six days and is shaking, asks "whadds-up?" when officer approaches

It is important to note that these data will not allow us to establish the true *cause* of searches; that is, just because troopers say they searched a car or motorist because of a marijuana-like smell does not prove that the smell was the reason for the search. These data do show, however, that troopers can and do identify often subtle indicators that the driver may have contraband, and

significantly, that troopers think in terms of probabilistic and causal relationships. In other words, the findings from our interviews suggest that troopers do think carefully about the types of factors that might indicate the presence of contraband.

Also, although these factors apparently contribute to the likelihood that a search will be conducted, we note that nearly every trooper we interviewed told us that they did not like to conduct searches and that it was a very rare event for them. And if troopers feel that their safety may be an issue during a search, they are disinclined to conduct a search (e.g., if there are multiple people in the car and no back-up is available).

The reasons for searches and the manner in which they are conducted vary substantially from case to case, making generalizations somewhat difficult. Nonetheless, we have been able to discern some basic patterns based on WSP troopers' descriptions and explanations of the searches they have conducted. Most searches registered in the WSP traffic stop database are searches incident to arrest. These will often occur as the result of a DUI, or as a consequence of an arrest that is made pursuant to seeing contraband in "plain view" (e.g., drug paraphernalia, a roach, an open container on the console, seat or floor of the cabin space of the vehicle). When there is no immediate basis for arrest, indicators such as those listed above often lead the officer to engage the driver in a conversation to obtain information about where they were going, where they have been, or why they are on the road. If answers to these questions result in the driver's story not "adding up" (e.g., they are headed North on I-5, but claim that they are traveling to Portland), the trooper may become suspicious. Troopers told us that if their suspicion is aroused, they sometimes simply ask "where's the dope [or other contraband]?" They indicated that in a surprising number of cases the suspicious driver gives in and produces illegal drugs they have in the car. In these cases, the officers usually arrest the driver and search incident to that arrest. If officers are unable to get the

suspicious driver (and/or passengers) to produce contraband through questioning, they may request consent to search the car. If granted consent, troopers then conduct the search and record on the TARS form the performance of a consent search. Most WSP troopers told us that they take great care to read from the official "consent card" and get the motorist's signature, although a few acknowledged that they do not always do so.

Many of the same factors that lead to consent searches also affect a trooper's decision to request a K-9 unit. In some instances, troopers may request a K-9 unit after they have asked the driver for consent to search but the driver has refused to give consent. Such instances are rare, however, as troopers consistently told us that very few people actually refuse when asked to consent to a search. More commonly, a trooper will suspect that there is contraband in the vehicle based on the types of factors outlined in the previous paragraph, but prefers to call the K-9 unit in for assistance. For some troopers, this appears to be a prudent course of action to assure that the search performed will be upheld if contested in a court proceeding. For others, it is a personal preference they have not to conduct searches. Such troopers are of the belief that the K-9 units are specially trained to conduct searches and have a great deal of experience with the search process, and therefore should be called in to support the road troopers.

Several troopers and sergeants discussed the importance of SCAT (Serious Crime Apprehension Teams) in understanding the rates and dynamics of WSP searches. Based on our interviews, it is our understanding that members of these SCAT groups receive special training to engage in criminal investigation work. Although it is clear that among non-SCAT troopers there are a few troopers who conduct searches and are interested in making drug arrests and engaging in other types of criminal investigation work, most troopers we talked to were primarily concerned with other activities, such as enforcing the laws related to the "Core Four." Troopers informed us that

they believed a majority of searches, and an overwhelming majority of consent and K-9 searches, are conducted by members of SCAT teams. In fact, in some APAs, it appears that troopers prefer to call in SCAT officers whenever they believe a situation is suspicious—non-SCAT troopers would rather have SCAT troopers conduct the search. We have also learned that SCAT members have been called on to patrol in APAs that do not have SCAT teams. It is our understanding that the SCAT members keep their own TARS forms, but file them with their sergeants in their "home" APA. This may create a problem for our analyses, especially if it is true that SCAT members are conducting most of the searches.

Conclusions and Directions for Future Research on Search and Seizure

We have learned a great deal about why and how searches are conducted by WSP troopers, although we still cannot yet definitively explain all of the observed racial disparities in searches. Thus far, we reach the following conclusions about search and seizure. First, numerous factors influence the likelihood of searches including, but not limited to, race. The seriousness of the violation that led to the stop, the age, and the sex of the driver are all as important, and probably more important, than race in explaining the vast majority of searches conducted by officers of the WSP. Importantly, there are many other factors that affect the probability that a motorist will be searched. Our interviews with troopers resulted in a list of 29 different factors and indicators that result in or increase the likelihood of a search occurring during a traffic stop. None of these many factors are controlled for in the quantitative dataset. Second, we have not found any evidence of systematic, statewide, actual profiling, or purposeful discrimination or malice toward racial minorities. Third, the frequencies of different types of searches, and the proportions of different minority groups subjected to different types of searches vary among APAs. Fourth, the most serious issue involving race and searches is that of disparities in the percentages of Black, Hispanic,

and Native American drivers subjected to low discretion searches. Finally, the decision to search is a complex event that cannot be fully understood by quantitative data on traffic stops. We believe the WSP quantitative data on traffic stops are among the more extensive and reliable in the United States, but no dataset can capture all the circumstances related to the field decision to search. In short, it would be inappropriate and irresponsible for anyone to conclude that the WSP engages in systemic racial profiling or biased policing based solely on the proportions of those searched as represented by these data.

We have taken an approach to analyzing searches that not only meets appropriate standards of social science, but one that is also designed to reflect the applicable constitutional standards and Supreme Court doctrine. In doing so, we do not advocate a particular legal argument, nor do we wish to go into great detail regarding the legalities of searches and seizures. We simply note that in analyzing the reasonableness of a particular individual search under the Fourth Amendment to the Constitution, the Supreme Court generally adopts a "totality of the circumstances" approach. And when claims of racial discrimination are brought against a government agency for violating the Equal Protection Clause of the Fourteenth Amendment, the Court begins by asking whether the government has a policy of intentionally discriminating against minorities. If it does, the Court applies the "strict scrutiny test," and will only uphold the government policy if the state has a "compelling" interest and the policy is "narrowly tailored" to that interest. For example, state universities may make admissions decisions based on race in order to achieve diversity deemed essential for quality education. When a government policy does not discriminate against racial groups intentionally, or on its face, but the implementation of a race-neutral policy results in disproportionate effects on racial minorities, the court looks for evidence of bad purpose in the way the policy is implemented. If there is evidence of bad purpose, the Court again applies strict

scrutiny, but absent a finding of bad purpose, the Court allows disproportionate effects, or "disparate impact," if there is a legitimate state interest and the means are rationally related to the ends—an easier test for the state to meet.

Again, we do not refer to these judicially prescribed constitutional tests to advocate a legal argument. Rather, we wish to emphasize why it is important to look for evidence of discriminatory intent or bad purpose when analyzing the search practices of a law enforcement agency. Since our 2003 report, we have used the different categories of searches, based on low and high discretion types of searches, to assess how the WSP exercises discretion statewide. Our findings that high discretion searches are less likely to result in racial disparities than low discretion searches suggest that *racial disparities in search rates are not the result of intentional profiling* or some illicit purpose. Moreover, our multivariate analysis is consistent with the totality of the circumstances principles of the Court's Fourth Amendment doctrine and the principle that race may be one factor among many under the Equal Protection Clause. We are not qualified to, and therefore we do not, proffer a legal opinion as to whether the WSP has met either of these tests, but the results of our analyses thus far have not indicated any clear or obvious *systematic* constitutional violations based on these doctrines and standards. Nonetheless, there are still racial disparities among minorities subjected to certain types of searches, and in specific APAs, that have not been adequately explained, and continue to make any ultimate conclusions regarding WSP search practices somewhat tentative and speculative.

Our data analysis in this report, as well as in our 2003 report, indicate that the real issue for the WSP is not whether officers target minorities for consent or other high discretion searches, but rather why is it that Black, Hispanic, and Native American drivers appear more likely to be the subject of low discretionary searches when serious violations are present? There

are two plausible explanations. First, it is possible that officers make decisions based on race prior to the search. That is, perhaps officers' decisions to arrest, to seek a warrant, or to impound a car are predicated on race, and the search therefore follows. Although possible, this is inconsistent with our observations and findings of how WSP troopers regularly conduct themselves. Alternatively, a second explanation may be that the underlying offending rates of certain racial groups are higher than those for other groups. For instance, it could be speculated that based on alcoholism-related problems on Indian Reservations, Native American drivers engage in driving while intoxicated more frequently than other racial/ethnic groups. In our interviews with WSP troopers, some officers who work near tribal reservations speculated that this may indeed be so. Additionally, preliminary analysis of the WSP traffic data indicates that Native American drivers are found with open containers of alcohol in their vehicles more frequently than drivers of other races. Thus, if they are in fact subject to arrest more frequently for DUIs based upon higher offending rates, Native American drivers would also be subjected to a higher proportion of searches incident to arrest. Although this latter theory is consistent with comments and observations heard from the troopers during our interviews, we do not currently have appropriate data to answer the question definitively. This remains an important area for further analysis.

Additionally, during part of the period analyzed in this report, motorists who were driving with a suspended license were automatically arrested and searched incident to that arrest in accordance with official WSP policy.[15] It is possible that the proportion of suspended licenses of racial minorities differs from that of whites, perhaps as a result of socio-economic status. If

[15] In 2004, the Washington Supreme Court held in *Pulfrey v. Washington* that under Washington statutory law, in cases of discovery of a suspended license police officers have discretion to arrest, and therefore the WSP could not as a matter of policy require arrests in all cases.

this is the case, minorities would be arrested and searched at higher rates than whites. This also remains an important area for further research. At this stage, we cannot yet explain the disparities that exist for low discretion searches.

While we have gained some significant clues on how the patterns of search across racial and ethnic groups noted in our analyses come about, we have also discovered new information and insights that raise additional questions for future research. Perhaps the most significant from our vantage point is that we have gained a better understanding of the role of the WSP's SCAT program. We still need to know more about the program and the officers who have the SCAT training. We need to be able to identify the troopers who are members of these teams in the traffic stop dataset, and we need to be able to determine when a SCAT trooper is working outside his or her assigned APA. We need to talk to SCAT officers, and if possible observe them via video or in ride-a-longs for some period of time. More information and data on SCAT officers and operations may also provide insights into why high discretion searches are more likely in some APAs than others, in addition to explaining why high discretion searches are usually conducted in the first place. In addition to obtaining further information regarding SCAT teams, there are still numerous data quality issues that need to be addressed. As noted above, the coding of searches on DUIs, for example, is a problem that still needs to be attended to in officer training and field supervision. It would appear that further education about how to properly code searches and contraband is required as well. As we suggested in our August 2003 report, and as has been discussed in meetings since that report was completed, it may be necessary to implement some minor changes to the TARS form, accompanied by appropriate training.

IV. CITIZEN SURVEY DATA

The results of the most recent citizen survey conducted by the Division of Governmental Studies and Services (DGSS) for the WSP also provide valuable insight in this analysis of traffic stop phenomena. The 2003 survey contained specific content pertinent to biased policing and racial profiling, and was used as an effective mechanism for recruiting citizens for focus group discussions held across the state. DGSS has administered a statewide survey for the WSP on a roughly two-year cycle for the past 13 years. The seventh and most recent survey was completed in early 2003.

Originally solely an effort to ascertain citizen perceptions of and support for the WSP for purposes of accreditation, the scope and content of the periodic statewide survey have been significantly expanded over the past decade. In the 1999-2000 cycle individuals who had come into contact with the WSP were added to the survey population. Because of the utility of that approach, and because of the then on-going Traffic Stop Data project, that sampling approach was replicated (and expanded) for the 2003 cycle of the statewide survey. In addition to a statewide random sample of citizens (consistent throughout the seven-survey series) and samples of people who had come into contact with the WSP for assistance, to receive a verbal or written warning, or to receive a citation or be arrested, this iteration of the survey also included targeted samples of minority drivers resident in specific high minority concentration APAs where minority drivers have come into frequent contact with the WSP. Thus, the 2003 survey targeted a total of 10,550 people across the State of Washington. A breakdown of sample size and response rates for each sample group appears in Figure 1, below.

Figure 1.

Sample Type	Sample	Responses	Rate*
Statewide Random	3,000	1,019	35.6%
Statewide Citations	1,000	232	24.2%
Statewide Verbal Warnings	550	156	29.9%
Statewide Written Warnings	1,000	292	30.6%
Statewide "SIPA" Assists	1,000	237	25.4%
Statewide Minority Drivers	2,000	371	20.4%
APA-Specific Drivers	2,000	528	27.5%
TOTAL	10,550	2,838	26.9%

*Calculated after excluding bad addresses; three-wave mail survey process

Results of this three-wave mail survey provide three specific types of information pertinent to this report. First, the responses provide confirmation that overall citizen perceptions of and support for the WSP and its officers remain high. Second, and more interestingly in the context of this report, however, the results allow systematic comparison of aggregate responses from self-identified "minority" drivers (non-Caucasian respondents) and their non-minority counterparts. Third, specific questions on biased policing and racial profiling included in the 2003 survey provide direct insight into the citizens' perception of the use of officer discretion relative to racial and ethnic bias. The Traffic Stop Data project may in fact find no evidence of racial profiling in the areas of stops and citations when an appropriate multivariate analysis is conducted, but **what do citizens believe**? What do minority and non-minority citizens think regarding WSP troopers in this regard? What difference do citizen attitudes about racial profiling make to their overall assessment of the performance of the agency and its officers? These are the important questions investigated in this section of the report.

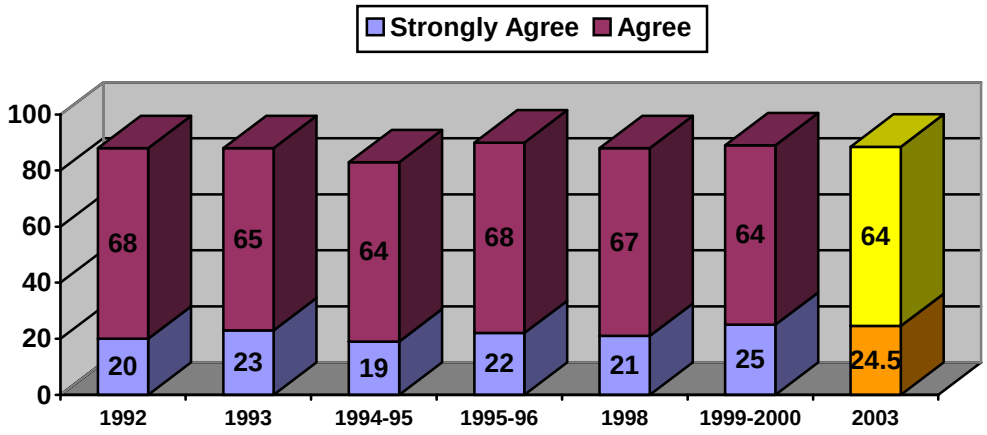
Aggregate Responses and Trends Observed From Survey Responses

Trends for citizen perceptions of the State Patrol have been positive on a number of indicators for the entire decade-long series of the statewide surveys, with some degree of variation as discussed below. For example, questions about citizen perceptions of the agency have consistently resulted in more than 80% of respondents agreeing with the statement that the Washington State Patrol is doing an overall good job of performing its mission. Figure 2 illustrates that trend.

Figure 2.

Question: "Overall, the Washington State Patrol does a good job of performing its mission."

___Strongly Agree ___Agree___Undecided ___Disagree ___Strongly Disagree

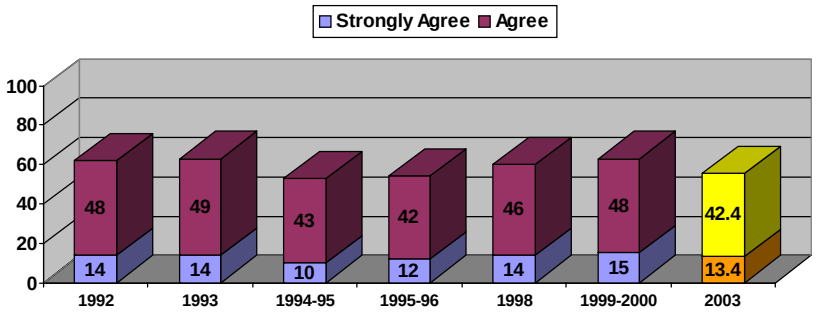


The periodic statewide surveys have all included a question about perceptions of trooper neutrality regarding drivers' ethnic background. Responses have consistently been less favorable on this question than on other questions regarding trooper performance, but the majority of the non-favorable responses have been in the "undecided" category rather than the negative categories. Overall ratings in the 2003 iteration are in line with those of previous years, as illustrated in Figure 3, below. Our interpretation of the linked lower "approval" rating and

increased "undecided" responses has been that most survey respondents lack experiential references for responding to this question. This seems to be borne out by statistical analysis, which indicates that generalized perceptions relating to driver race/ethnicity have more influence on this question than do drivers' exposure to the patrol. To be sure, additional analyses indicate that citizens' levels of satisfaction with the WSP and the performance of its officers are instead driven largely by *perceptions of whether the WSP engages in racial profiling*—a factor that fully mediates the relationship between race/ethnicity and satisfaction with the WSP in multivariate statistical models. What citizens **believe** about a police agency with respect to its officers engaging in racial profiling is demonstrably a powerful factor in how they assess every aspect of that agency's work.

Figure 3.

Question: "The Washington State Patrol typically treats citizens the same regardless of their ethnic background."

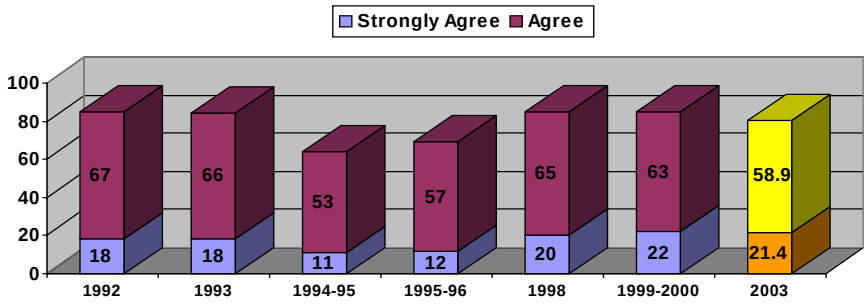


Another, perhaps more significant, measure of citizens' perceptions of the WSP comes from a question asking respondents to rate their satisfaction with services offered by the Patrol. With the exception of responses for the third and fourth iteration of the survey—which were markedly lower—responses on this question have also confirmed positive driver perceptions of the Patrol. For the 2003 iteration, 80 percent of the respondents agreed that they were "quite

satisfied" with services provided by the WSP. The response trends for this question are displayed in graphic form in Figure 4.

Figure 4.

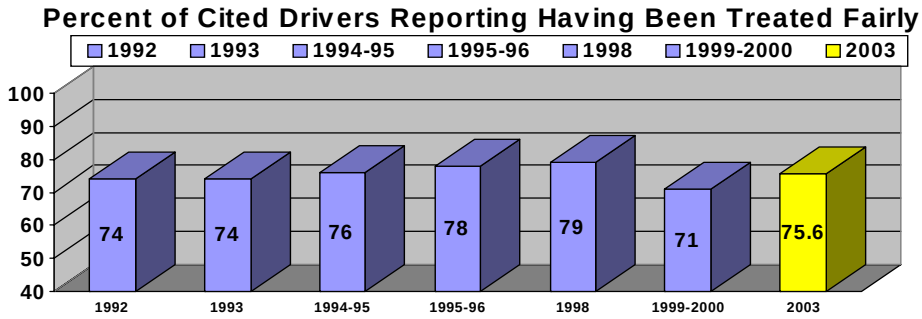
Question: "I am quite satisfied with those services provided by the Washington State Patrol with which I am familiar."



Finally, the aggregate responses from the 2003 survey continue a trend of high perceptions of fairness on the part of WSP troopers among those drivers who have been cited. Over 75 percent of cited drivers who responded to the 2003 survey indicated that they were treated fairly when receiving a citation. Responses for the full series of surveys on this question appear in Figure 5 below.

Figure 4.

Question: "Receiving a traffic citation (ticket) is never a pleasant experience. If you have ever received a traffic ticket from a WSP Trooper, did you feel you were treated fairly?"



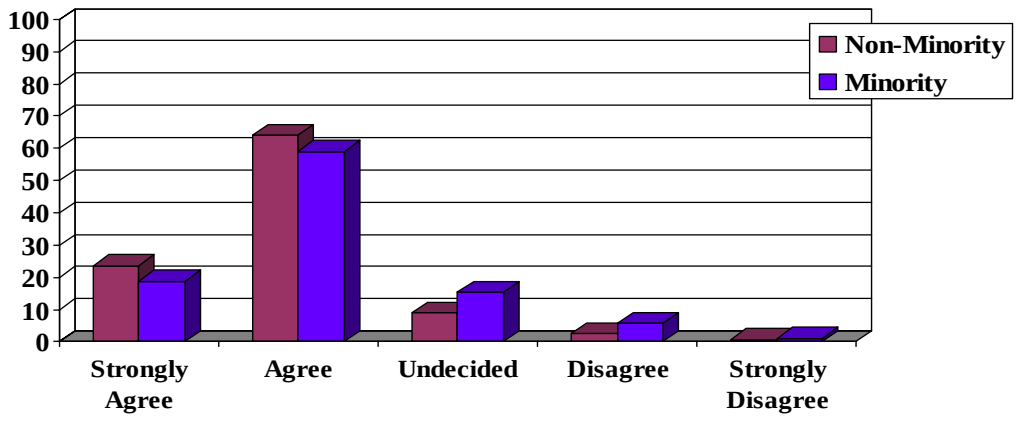
Minority Driver Responses

Because of the sampling methodology employed for the 2003 iteration of the WSP Citizen Survey, it is possible to do aggregate comparisons for responses from self-identified minority and non-minority respondents on the questions discussed above. The first such comparison discussed herein is that on the general question of mission performance as illustrated in Figure 1. On a simple breakdown of responses between Caucasian and non-Caucasian citizens, some noteworthy differences appear in reported perceptions of the WSP. However, these differences are not great, and the shift away from positive assessments is toward the "undecided" category rather than the more negative of the continuum on mission performance in minority vs. non-minority comparisons. Figure 6 graphically illustrates these minority vs. non-minority differences. It bears noting more than 75 percent of minority survey respondents report agreeing with the proposition that the Washington State Patrol is doing a good job of performing its mission.

Figure 6.

Question: "Overall, the Washington State Patrol does a good job of performing its mission."

___Strongly Agree ___Agree___Undecided ___Disagree ___Strongly Disagree

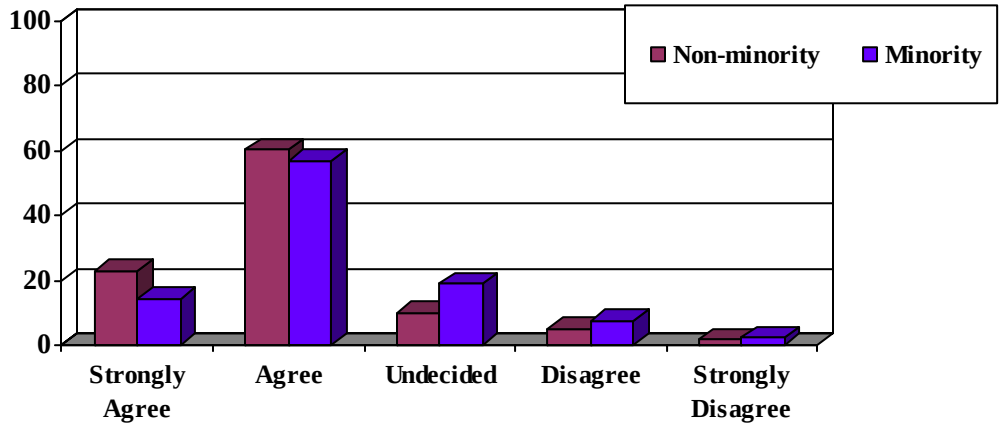


For minority (e.g., non-Caucasian) respondents, the responses regarding satisfaction with the services provided by the WSP show very similar patterns. Slightly fewer minority citizens report satisfaction with agency services than do non-minority citizens, but the largest percentage of this reduced favorable response appears to shift to the "undecided" category rather than to negative perceptions of the performance of the WSP. Negative perceptions are only slightly more frequent among minority citizens than among non-minority citizens. Figure 7 provides a graphic illustration of the differences in satisfaction with WSP services between Caucasian and non-Caucasian respondents.

Figure 7.

Question: "I am quite satisfied with those services provided by the WSP with which I am familiar."

___Strongly Agree ___Agree ___Undecided ___Disagree ___Strongly Disagree



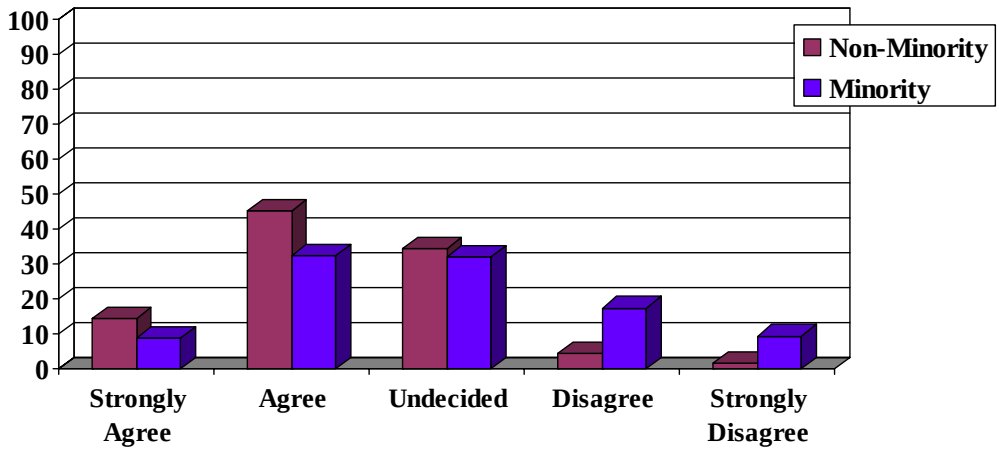
The responses from non-Caucasian citizens to the question of WSP trooper neutrality do indicate that there are racial and ethnic differences in perceptions amongst respondents on this issue. The percentage of non-Caucasian respondents who disagree with the proposition that WSP troopers treat all persons with neutrality vis-à-vis racial and ethnic background is significantly higher than for Caucasian respondents. What influences these perceptions is a

question that needs additional attention, given the relatively congruent ratings on satisfaction with services and mission performance. Figure 8 illustrates those differences.

Figure 8.

Question: "The WSP typically treats citizens the same regardless of their ethnic background."

___Strongly Agree ___Agree ___Undecided ___Disagree ___Strongly Disagree

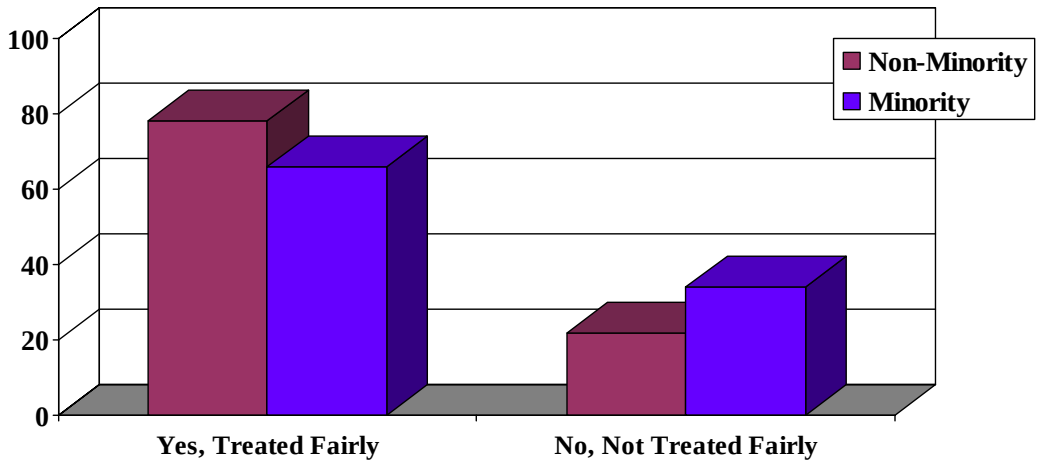


This is clearly an area that is richly deserving of the continuing attention of the Washington State Patrol. However, analysis of these responses at the APA level confirms observations discussed much more fully elsewhere in this report regarding geographically-linked contextual differences across the State of Washington. There do appear to be some statewide differences in *experience* with the Patrol between non-Caucasian and Caucasian drivers, however, that bear noting. The patterns observed on the question of perceptions of fair treatment exhibit differences across minority and non-minority groups, which further analysis confirms exhibit APA-level differences as well. Figure 9 provides those comparative response rankings. Nevertheless, as stated above these racial differences are fully mediated by whether the citizen believes that WSP officers engage in the practice of racial profiling.

Figure 9.

Question: "If you ever received a traffic ticket from a WSP trooper, did you feel you were treated fairly?"

___Yes, treated fairly ___No, not treated fairly ___Never received a ticket

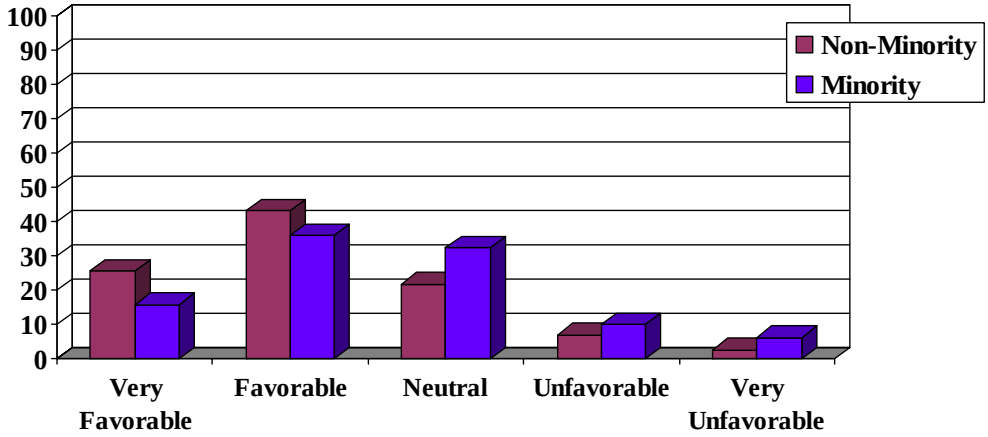


A final question that would seem to confirm that there are both experiential and perceptual issues at work in influencing minority assessments of the WSP on these items is one regarding experience. Respondents are asked to rate their impression of their last contact with the WSP. Minority citizen responses on this item, while not as favorable overall as non-minority responses, are more in line than the previous two questions discussed above, with "undecided" again assuming significant importance. These comparisons are set forth in Figure 10.

Figure 10.

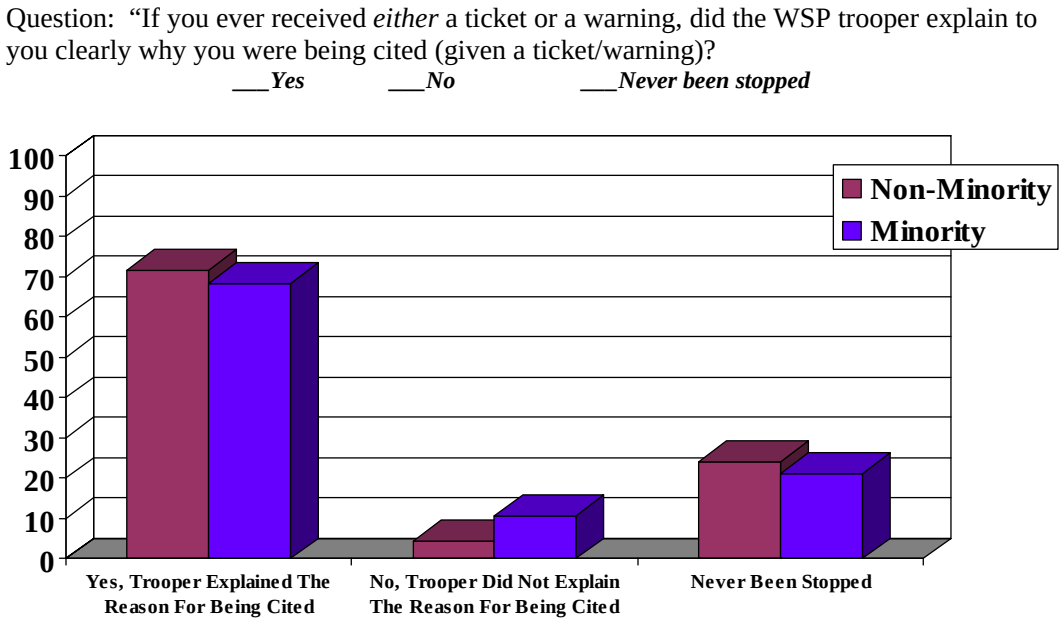
Question: "What is your over-all impression of the most recent contact you have had with a WSP trooper?"

___Very Favorable ___Favorable ___Neutral ___Unfavorable ___Very Unfavorable



Finally, a series of questions inserted into the 2003 questionnaire specifically to examine the issues of biased policing and racial profiling provide additional triangulating insight into the question of citizen perceptions concerning biased policing on the part of the WSP. These questions address both experience and perception, again allowing some interesting comparisons on these two influences impacting citizen reported ratings of the agency. The first of these questions asks respondents whether they received a clear explanation as to why they received a citation. Figure 11 provides the response comparisons between Caucasian and non-Caucasian respondents on this question. The relatively small variations between these two groups on this experiential question would seem to support conclusions stated elsewhere in this report regarding the lack of evidence of systemic bias on the part of the Patrol.

Figure 11.



Perhaps most directly on point for the question of *perceptions* of racial profiling by the WSP, and providing further graphic confirmation of our conclusions elsewhere regarding the absence of evidence of a systemic pattern of racial profiling is the question illustrated in Figure 12. **While 26 percent of non-minority citizens report believing that profiling occurs, 74 percent of African Americans and almost 66 percent of Latinos do so.** However, the percentages who feel that this problem is widespread is considerably lower, and there are marked differences across race and, more importantly, APA and reason for contact. These contextual differences outweigh race as an influence on perception of racial profiling activity when analyzed.

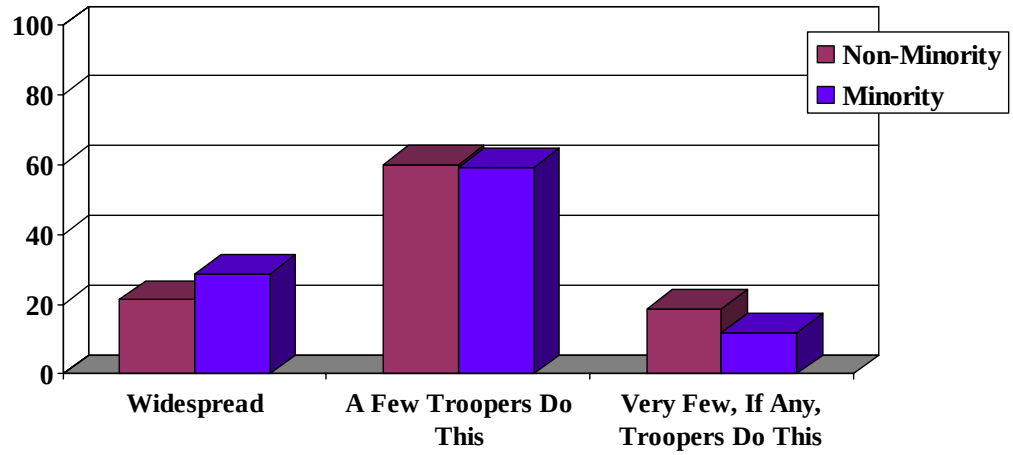
Figure 12

Question: "It has been reported nationally that some police officers stop citizens of certain racial or ethnic groups because officers believe that these groups are more likely than others to commit certain types of crimes. Do you believe that troopers in the Washington State Patrol engage in this practice when they decide to stop drivers?"

___Yes ___No

If you answered "Yes" above, how widespread do you think this practice is within the WSP?

___Widespread ___A few troopers do this ___Very few if any troopers do this



The next two questions of interest pertain to respondents' perceptions with regards to searches of the person and of vehicles. Both of these questions provide very interesting results. Minority survey respondents were MORE likely to view search activity as legitimate than were Caucasian respondents in both cases. These findings serve as final examples of the complex nature of the relationship between experience and perception based upon more generalized factors other than experience. Where experience with the WSP is the basis for respondents' reported perceptions, the Patrol tends to do fairly well. Where other (non-experiential) factors are the basis of reported perceptions, respondents are much less apt to report favorably.

Figure 13.

Non-Minority vs. Minority Vehicle Searches

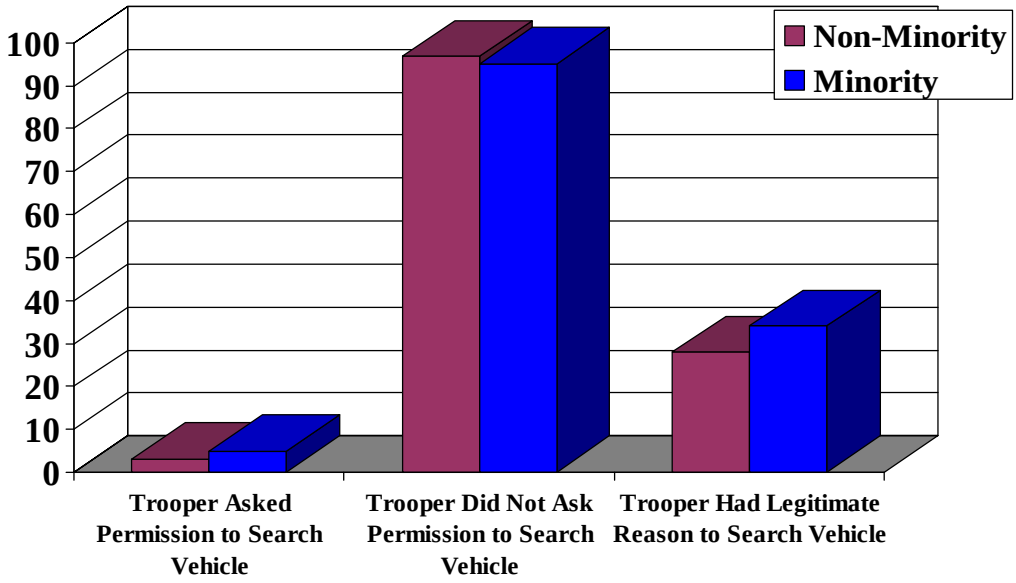
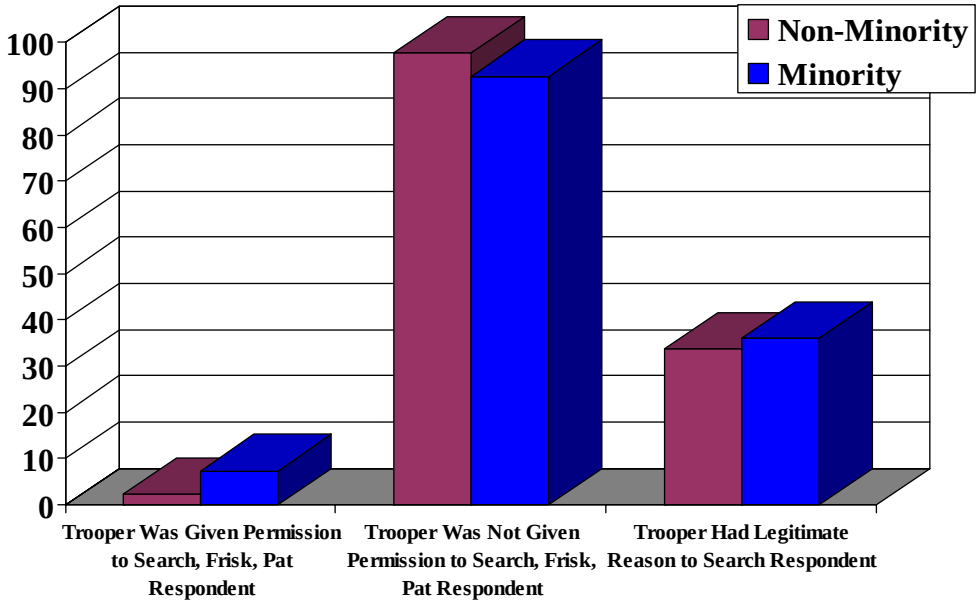


Figure 14.

Non-Minority vs. Minority Personal Searches



V. FUTURE DIRECTIONS

Preliminary planning work on "Phase IV" of our research work with the WSP on the Traffic Stop Data Analysis Project has entered the first stage of problem scoping, researcher availability and cost estimation. This work as currently contemplated would focus on seven primary areas of field research and analysis: (1) continued monitoring of traffic stop data; (2) more complete driver digital photo vs. trooper racial coding audit; (3) use of force data analysis; (4) SCAT officer interviews and field observations; (5) car-mounted video tape archive review; (6) aircraft directed stop-based denominators for high Latino and Native American driver contact APAs; and, (7) Native American focus group sessions held on tribal reservations.

1. Updated Stop, Citation, and Search Analyses

The first (and most essential) component of the Phase IV traffic stop research would be the continued monitoring of traffic stops, citation vs. warning decisions, and vehicle searches with *new data*. We feel strongly that it is critically important to continue applying the multivariate model we have refined against the five separate benchmark rates developed in this report to future traffic stop data. This is particularly important in light of the recent change in agency leadership in the WSP.

2. More Comprehensive Photo Audit

We also feel it is important to conduct another, more comprehensive digital photo-based identification/racial classification verification audit with a larger random sample using a race-inclusive sampling frame. We learned a number of important things from our the first photo audit, but we also discovered that the white only, daytime stop sampling frame—while enabling us to answer the immediate question facing the WSP at the time—was not sufficient for a full assessment of the validity of the officer in-the-field driver racial classification.

3. Use of Force Analysis

Earlier conversations with the WSP indicated that just over 300 records of use of force incidents exist in agency records. Given the data elements contained on the use of force sheets, our preliminary assessment of those records suggests that there are a number of pertinent research questions that can be answered assuming reasonable accuracy and completeness characterize the information contained in the agency's use of force records.

In particular, the key independent variable of interest—in order to tie this portion of the analysis in with the larger project of the potential implications of citizens' race on troopers' behavior—would be the citizen's race/ethnicity. In terms of outcome variables that may be examined, two can be immediately identified: (1) an "escalation of force" scale that can be constructed from the use of force records; and, (2) documentation of physical injuries resulting from a use of force incident.

The use of force records will also allow us to control for a host of theoretically relevant characteristics of *troopers* (e.g., age, sex, length and range of experience, primary responsibilities), *citizens* (e.g., age, sex, interactions with the troopers), and the *context of the incident* (e.g., type of activity—such as DUI, traffic, felony stop—and the APA context).

Given this set of variables, the following questions can be investigated:

Q1: What is the effect of citizen's race on the likelihood that an escalation of force will take place?

Q2: What is the effect of citizen's race on the likelihood that an injury will be sustained as a result of the use of force incident?

Q3: Is the relationship between citizen's race and the escalation of force mediated by trooper, citizen, or contextual characteristics?

Q4: Is the relationship between citizen's race and the likelihood of an injury mediated by trooper, citizen, or contextual characteristics?

Q5: Do contextual characteristics interact with trooper and/or citizen characteristics to influence the escalation of force?

Q6: Do contextual characteristics interact with trooper and/or citizen characteristics to influence the likelihood of an injury from a use of force incident?

Thus, the broader aim of the use of force analysis would be to uncover the role that race and ethnicity may play—if any—in use of force incidents that occur within the WSP.

4. SCAT Officer Interviews and Field Observations

The focus group sessions held with WSP troopers and the interviews conducted with WSP sergeants across the state brought to our attention the critical role that SCAT officers play in the search activities of the WSP statewide. Since a large proportion of WSP searches are conducted by these officers (some troopers say that a large majority of searches are conducted by SCAT officers in their particular areas), it is quite important that we understand as fully as possible how SCAT officers approach their work and how they carry out their special skills in their fieldwork. As a result of their central importance to our understanding of the search data we are analyzing, we think it is very important to interview a number of SCAT officers, to conduct a review of the materials and policy handbooks used in their training, and do some ride-along observations with SCAT officers.

5. Car-Mounted Videotape Archive Review

During our field interviews and focus group sessions with WSP troopers and sergeants it was brought to our attention that the WSP maintains an archive of videotapes recorded during traffic stops by car-mounted cameras. It would be most useful to review a sample of such videotapes, and to interview the officers whose vehicles have this equipment to assess how they think such equipment alters how they conduct traffic stops.

6. Aircraft Benchmarking for APAs with High Rates of Latino and Native American Citations and Searches

A critical, racially and ethnically "blind" method of establishing benchmarks for rates of offending by specific demographic groups in a particular geographic area is that of aircraft-spotted offenses. If different demographic groups commit traffic offenses at different rates in a particular area, a method for estimating those differential rates exists with aircraft spotted offenses. With regard to the small number of APAs where disparities in citation and search rates for Latinos and Native Americans are in evidence, a need exists to establish sound *base rates* of offense by group; aircraft-spotted offenses would serve that purpose extremely well. Selection of appropriate road segments and observation of aircraft patrol activity in order to deliberately expand the availability of this important data would provide benchmark capability not known to exist elsewhere in the country.

7. Native American Focus Groups

Finally, we have taken great pains to put into place the groundwork for continuing the citizen focus group process with *Native Americans* in areas where high rates of contact with the WSP are in evidence. We spent a considerable amount of time and effort building a foundation for doing focus group and interview data collection work on the Colville, Spokane, and Yakima reservations, and would like to follow through on these promising contacts in a Phase IV effort.

REFERENCES

Black, D. (1980). *The Manners and Customs of the Police*. New York: Academic Press.

Borooah, Vani K. (2001). "Racial Bias in Police Stops and Searches: An Economic Analysis." *European Journal of Political Economy* 18:607.

California Highway Patrol. (2000). *Public Contact Demographic Data Summary Report to the Governor*. Sacramento: State of California.

Carter, D., A. Katz-Bannister, and J. Schafer. (2002). *Analysis of the Lansing Police Department MATS Data: An 18-month Status Report*. East Lansing, MI: Michigan State University.

Cordner, G., B. Williams, and A. Velasco. (2002). "Vehicle Stops in San Diego: 2001."

Council on Crime and Justice. (2001). "Minneapolis Police Traffic Stops and Driver's Race: Analysis and Recommendations."

Cox, S., S. Pease, D. Miller, and C. Tyson. (2001). "Interim Report of Traffic Stop Statistics: January 2000 to June 2000."

Davila, F. (2002). "Traffic Stop Data Won't Halt Debate Over Racial Profiling." *Seattle Times*, March 15.

Eck, J., Lin, L., and Bostaph, L. (2003). "Police Vehicle Stops in Cincinnati: July 1-December 31, 2001."

Edwards, T., E. Grossi, G. Vito, and A. West. (2002). "Traffic Stop Practices of the Louisville Police Department."

Engel, R. S., and J.M. Calnon. (2004a). "Examining the Influence of Drivers' Characteristics During Traffic Stops with Police: Results from a National Survey." *Justice Quarterly* 21:49-80.

Engel, R.S., and J.M. Calnon. (2004b). "Comparing Benchmark Methodologies for Police-Citizen Contacts: Traffic Stop Data Collection for the Pennsylvania State Police." *Police Quarterly* 7:97-125.

Farrell, A., J. McDevitt, S. Cronin, and E. Pierce. (2003). *Rhode Island Traffic Stop Statistics Act Final Report*. Boston, MA: Northeastern Univ., Institute on Race and Justice.

Farrell, A., J. McDevitt, L. Bailey, C. Andresen, and E. Pierce. (2004). *Massachusetts Racial and Gender Profiling Study*. Boston, MA: Northeastern Univ., Institute on Race and Justice.

Florida Highway Patrol. (2003). No title (analysis of state traffic stop data).

Fridell, L.R. (2004). *By the Numbers*. Washington, D.C.: Police Executive Research Forum.

Gaines, L. (2003). "An Analysis of Traffic Stop Data in the City of Riverside." San Bernardino, CA: California State University, San Bernardino.

Iowa Division of Criminal and Juvenile Justice Planning. (2003). "An Examination of Iowa State Patrol Traffic Stops: 10/00-03, 2002." Des Moines: State of Iowa.

Knowles, John, Nicola Persico and Petra Todd. (2001). "Racial Bias in Motor Vehicle Searches: Theory and Evidence." *Journal of Political Economy* 109(1): 203.

Lamberth, J. (1996). "Revised Statistical Analysis of the Incidence of Police Stops and Arrests of Black Drivers/travelers on the New Jersey Turnpike Between Interchanges 1 and 3 from the years 1988 through 1991." Report of the Defendant's Expert in State v Pedro Soto, 734 A. 2d 350 [NJ Super Ct. Law. Div. 1996]

Lamberth, J. (1997). "Report of John Lamberth, Ph.D." American Civil Liberties Union. [on-line] Available at: www.aclu.org/court/lamberth.html.

Lamberth, J. (2003a). "Racial Profiling Data Analysis Study. Final Report for the San Antonio Police Department."

Lamberth, J. (2003b). "A Multijurisdictional Assessment of Traffic Enforcement and Data Collection in Kansas." Washington, D.C.: Police Foundation.

Lamberth, J. (2004). "Ann Arbor Police Traffic Stop Data Collection Methods and Analysis Study." Lamberth Consulting.

Lange, J.E., K. Blackman and M.B. Johnson. (2001). "Speed Violation Survey of the New Jersey Turnpike. Final Report." Trenton, N.J.: Office of the Attorney General.

McMahon, J., J. Garner, R. Davis, and A. Kraus. (2002). *How to Correctly Collect and Analyze Racial Profiling Data: Your Reputation Depends on It.* Washington, D.C.: U.S. Government Printing Office.

Minnesota. (2003). "Minnesota Statewide Racial Profiling Report: All Participating Jurisdictions." Report to the Minnesota State Legislature. Minneapolis, MN: State of Minnesota.

Missouri Attorney General's Office. (2003). "2003 Annual Report: Missouri Traffic Stops."

New York Attorney General's Office. (1999). "The New York City Police Department's 'Stop and Frisk' Practices." New York: Office of the State Attorney General, New York.

Persico, Nicola. (2002). "Racial Profiling, Fairness, and the Effectiveness of Policing." *The American Economic Review* 92(5): 1472.

Rojek, J., R. Rosenfeld, and S. Decker. (2004). "The Influence of Driver's Race on Traffic Stops in Missouri." *Police Quarterly* 7:126-47.

Schlosberg, M. (2002). "A Department in Denial: The San Francisco Police Department's Failure to Address Racial Profiling." American Civil Liberties Union.

Smith, M., and M. Petrocelli. (2001). "Racial Profiling? A Multivariate Analysis of Police Traffic Stop Data." *Police Quarterly* 4:4-27.

Smith, W., D. Tomaskovic-Devey, M.T. Zingraff, M. Mason, P.Y. Warren, and C.P. Wright. (2003). *The North Carolina Highway Traffic Study*. Washington, D.C.: National Institute of Justice.

Solop, F. (2002). "Statistical Analysis of I-40 Stop Data and I-40 Violator Data from Coconino County, Arizona."

Texas Department of Public Safety. (2002). "2002 Annual Traffic Stop Data Report."

Thomas, D. (2002). "Denver Police Department Contact Card Data Analysis."

United States Department of Justice. (2000). *Police Public Contact Survey*. Washington, D.C.: U.S. Government Printing Office.

Washington State Employment Security Department. (2000). *Labor Market Information Review*. Olympia, WA: State of Washington.